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THE NATIONAL GEOGRAPHIC MAGAZINE

DECEMBER, 1922

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SPECIAL MAP SUPPLEMENT—THE WORLD
(Size, 42 x 28)

The Glory That Was Greece
With 52 Illustrations ALEXANDER WILBOURNE WEDDELL

Sailing the Seven Seas in the Interest of Science
With 48 Illustrations J. P. AULT

The Society's New Map of the World

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TO carry out the purposes for which it was founded thirty-four years ago, the National Geographic Society publishes this Magazine. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization which was waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members through The Society to the Federal Government when the congressional appropriation for the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

THE Society is conducting extensive explorations and excavations in northwestern New Mexico, which was one of the most densely populated areas in North America before Columbus came, a region where prehistoric peoples lived in vast communal dwellings whose ruins are ranked second to none of ancient times in point of architecture, and whose customs, ceremonies and name have been engulfed in an oblivion more complete than any other people who left traces comparable to theirs.

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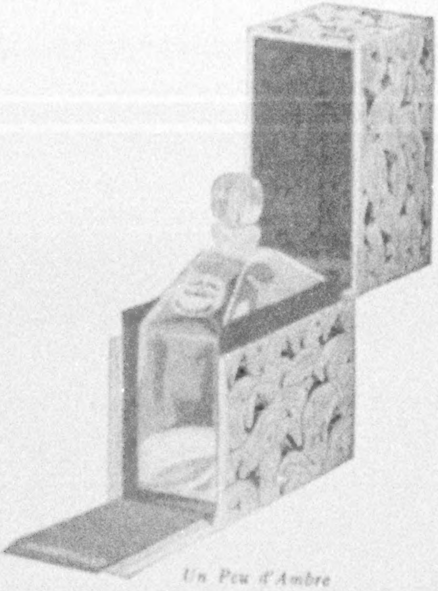
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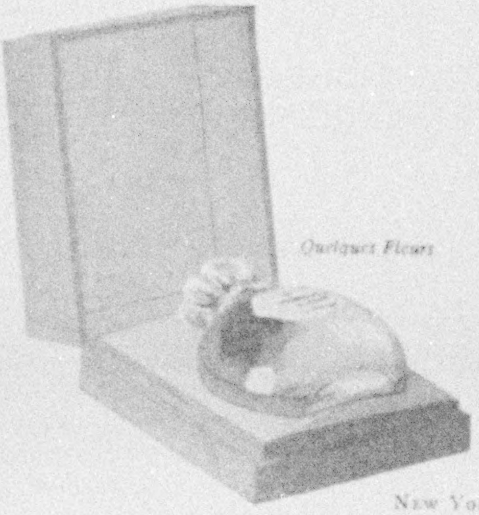
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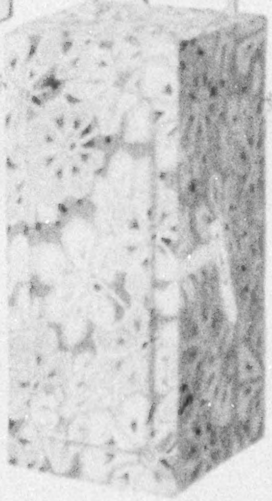
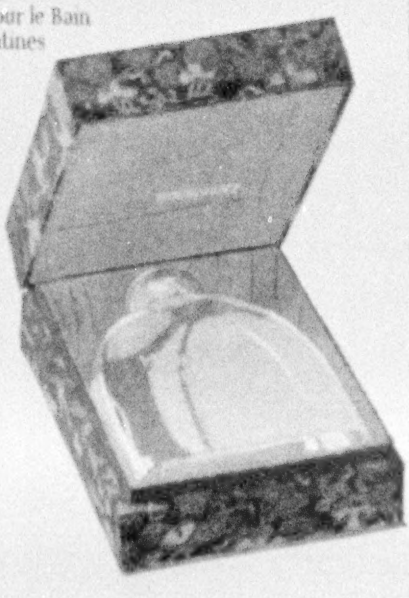
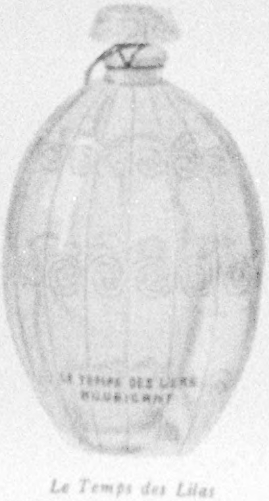

Le Parfum Idéal


Mon Boudoir



Le Temps des Lilas

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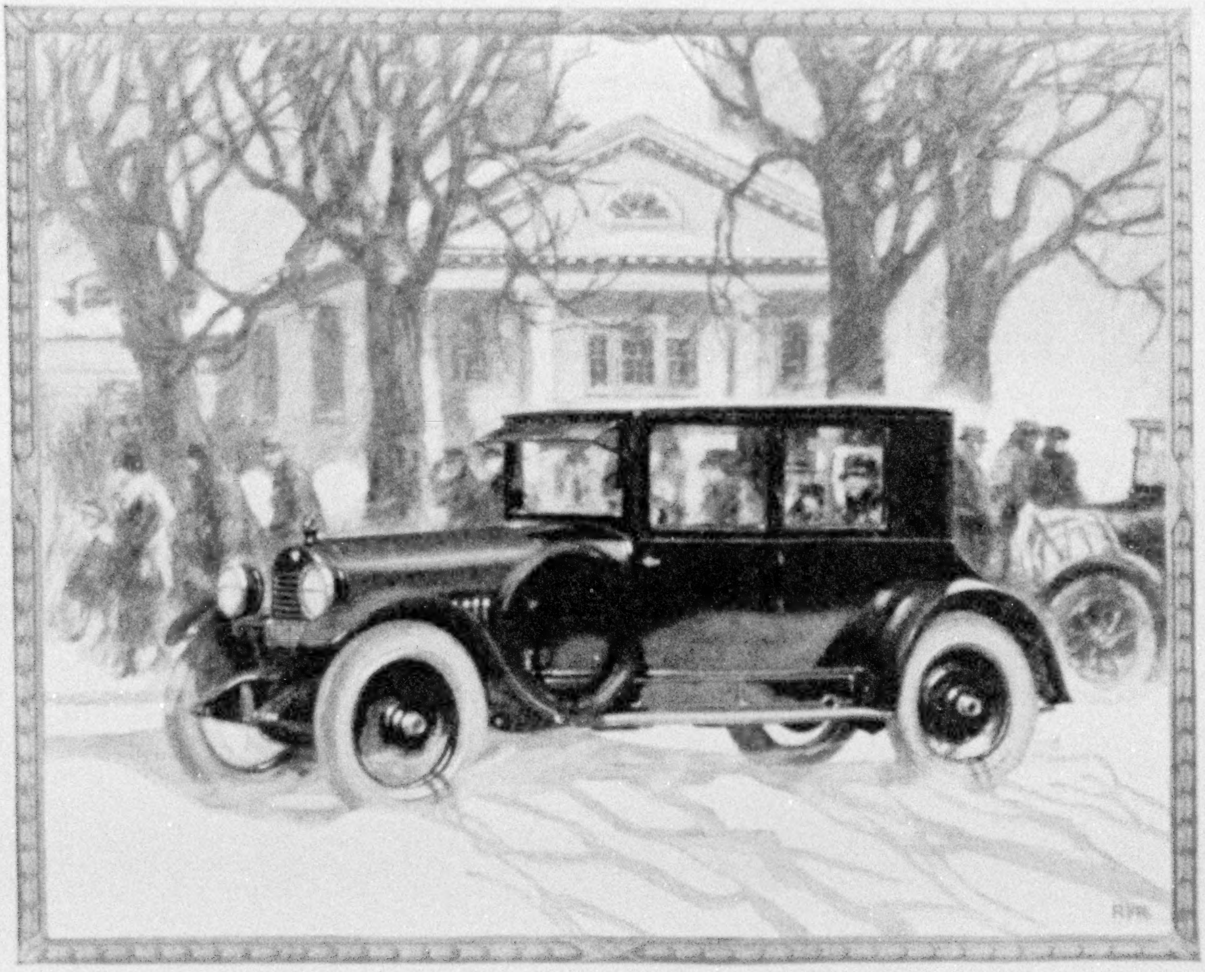

Just What is its Value?

Important Thoughts for Closed Car Buyers

There are two types of closed cars that sell under $2000.

Consider them well before you buy.

One features its fancy body and fittings with clock, trunk, dome lights, vanity cases and cigar lighter. In open models such a car sells at about $1000.

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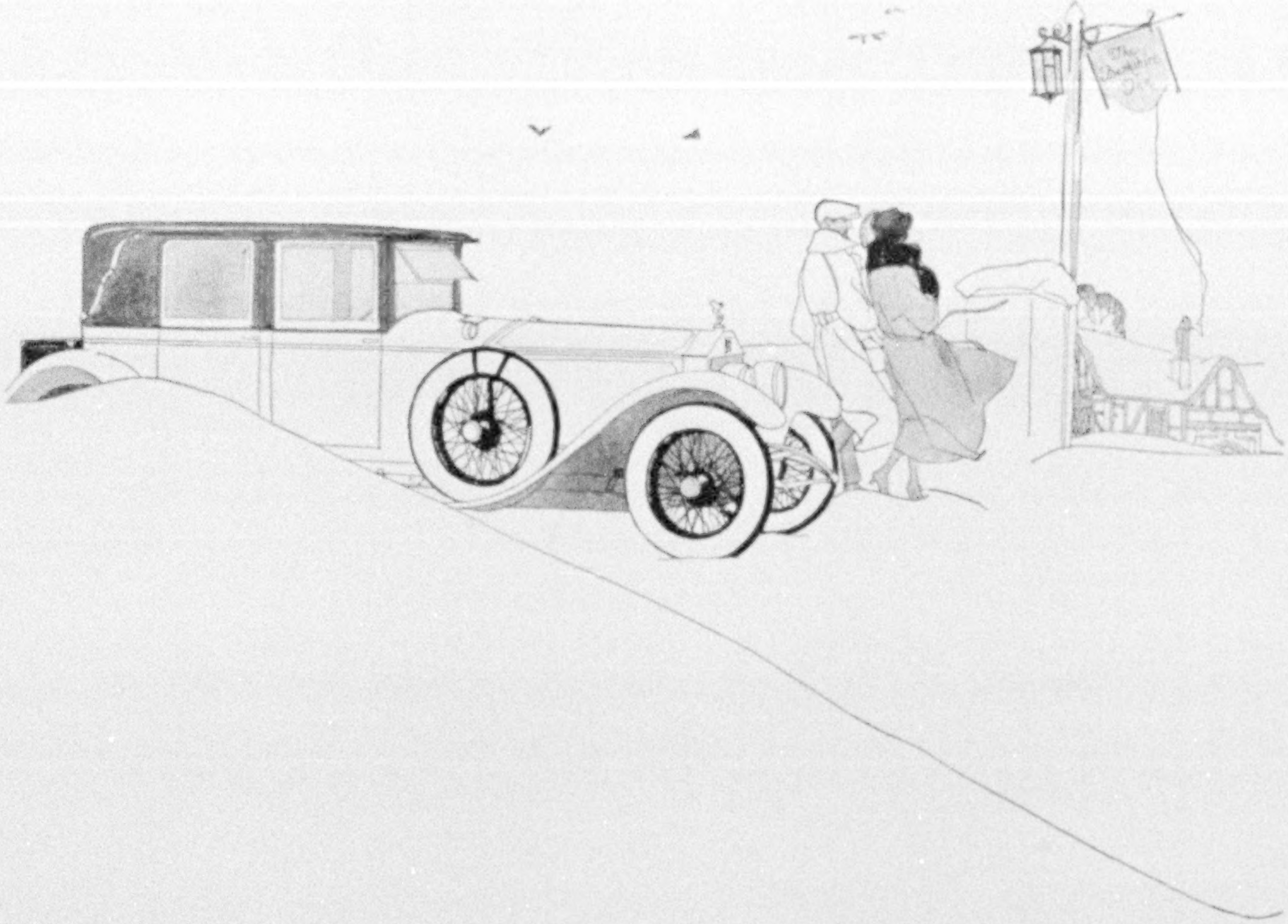

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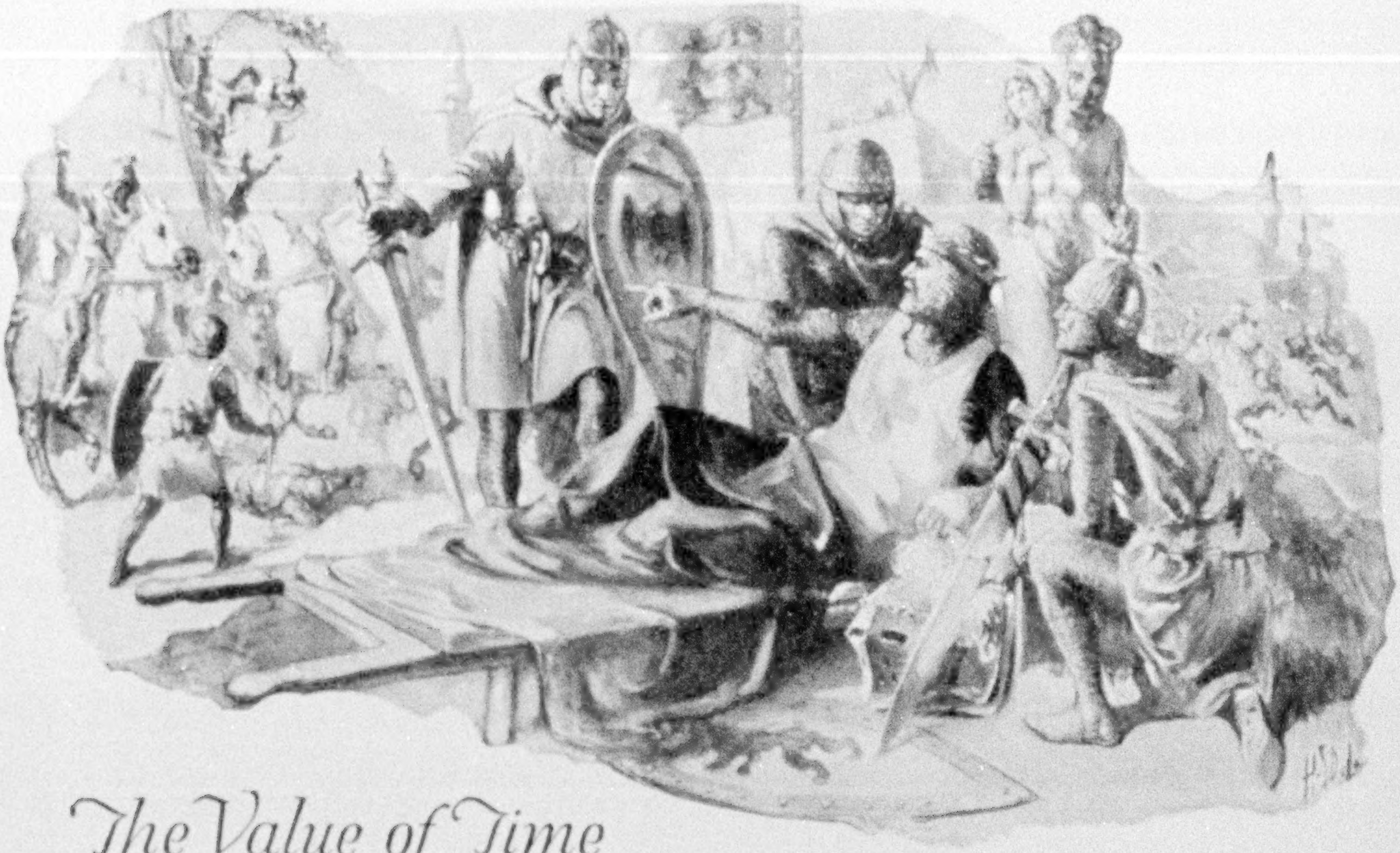

The Value of Time

By Krónos

Paintings by HAROLD DeLAY

RICHARD THE LION-HEARTED—"mightiest warrior and hardest working Crusader in all Christendom"—knew the Value of Time.

For two long years the city of Acre, near Jerusalem, had defied the besieging Crusaders—yet its walls trembled when Richard anchored off the Syrian shore. Lion-Heart's great hour had come at last. So clear was his vision of Time as his ally that he arose from a sick-bed, was carried to the trenches on a litter, and with his own sword hewed the fortress from the infidel's grip.

To this day, in the land of the Saracen, the name of Richard is a word to conjure with. And today, as it was seven centuries ago, life is a battle which no man can win without Father Time as his ally.

Over the Time of the Crusaders, the Saracen water clock stood guard. But the modern world, enriched by experience, intrusts life's costliest possession to those marvels of accuracy which human ingenuity and skill now place within the reach of all—

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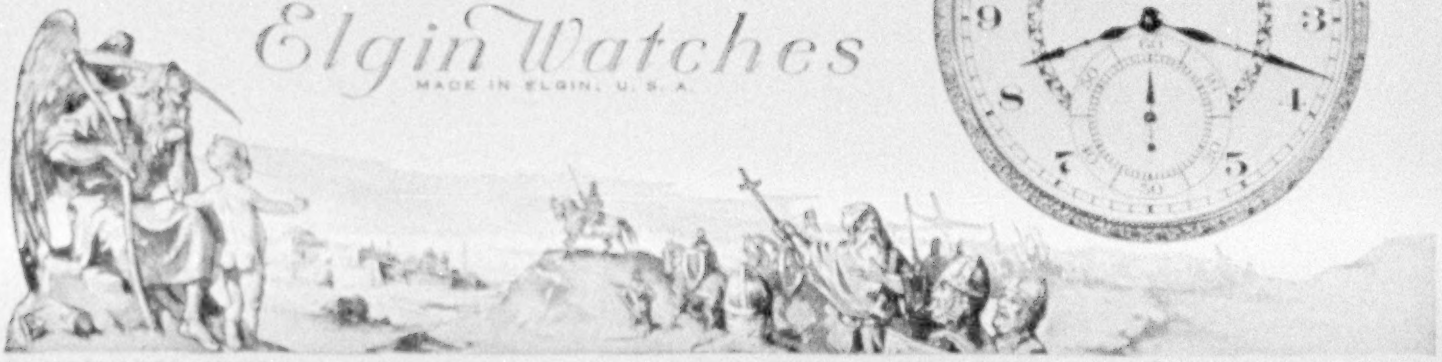

FATHER TIME IS ELGIN'S TRADE MARK

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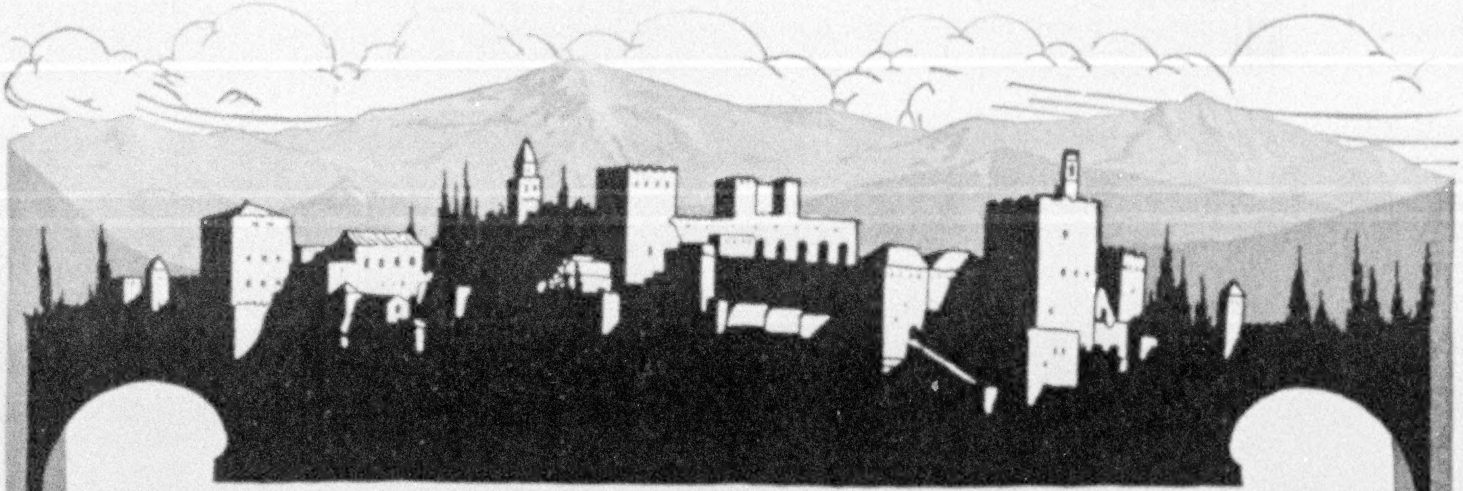

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REPUTATION

The man who builds and the man who buys are both beneficiaries of a good reputation. To the one it is a continuous spur and an incentive—to the other the strongest of all guarantees that what he buys is worthy. ❧ We sometimes speak of winning a reputation as though that were the final goal. The truth is contrary to this. Reputation is a reward, to be sure, but it is really the beginning, not the end of endeavor. It should not be the signal for a let-down, but, rather, a reminder that the standards which won recognition can never again be lowered. From him who gives much—much is forever after expected. ❧ Reputation is never completely earned—it is alway *being* earned. It is a reward—but in a much more profound sense it is a *continuing responsibility.* ❧ That which is mediocre may deteriorate and no great harm be done. That which has been accorded a good reputation is forever forbidden to drop below its own best. It must ceaselessly strive for higher standards. If your name means much to your public—you are doubly bound to keep faith. You have formed a habit of high aspiration which you cannot abandon—and out of that habit created a reputation which you dare not disown without drawing down disaster. ❧ There is an iron tyranny which compels men who do good work to go on doing good work. The name of that beneficent tyranny is reputation. There is an inflexible law which binds men who build well, to go on building well. The name of that benevolent law is reputation. There is an insurance which infallibly protects those whose reason for buying is that they believe in a thing and in its maker. The name of that kindly insurance is reputation. ❧ Choose without fear that which the generality of men join you in approving. There is no higher incentive in human endeavor than the reward of reputation—and no greater responsibility than the responsibility which reputation compels all of us to assume. Out of that reward and out of that responsibility come the very best of which the heart and mind and soul of man are capable.

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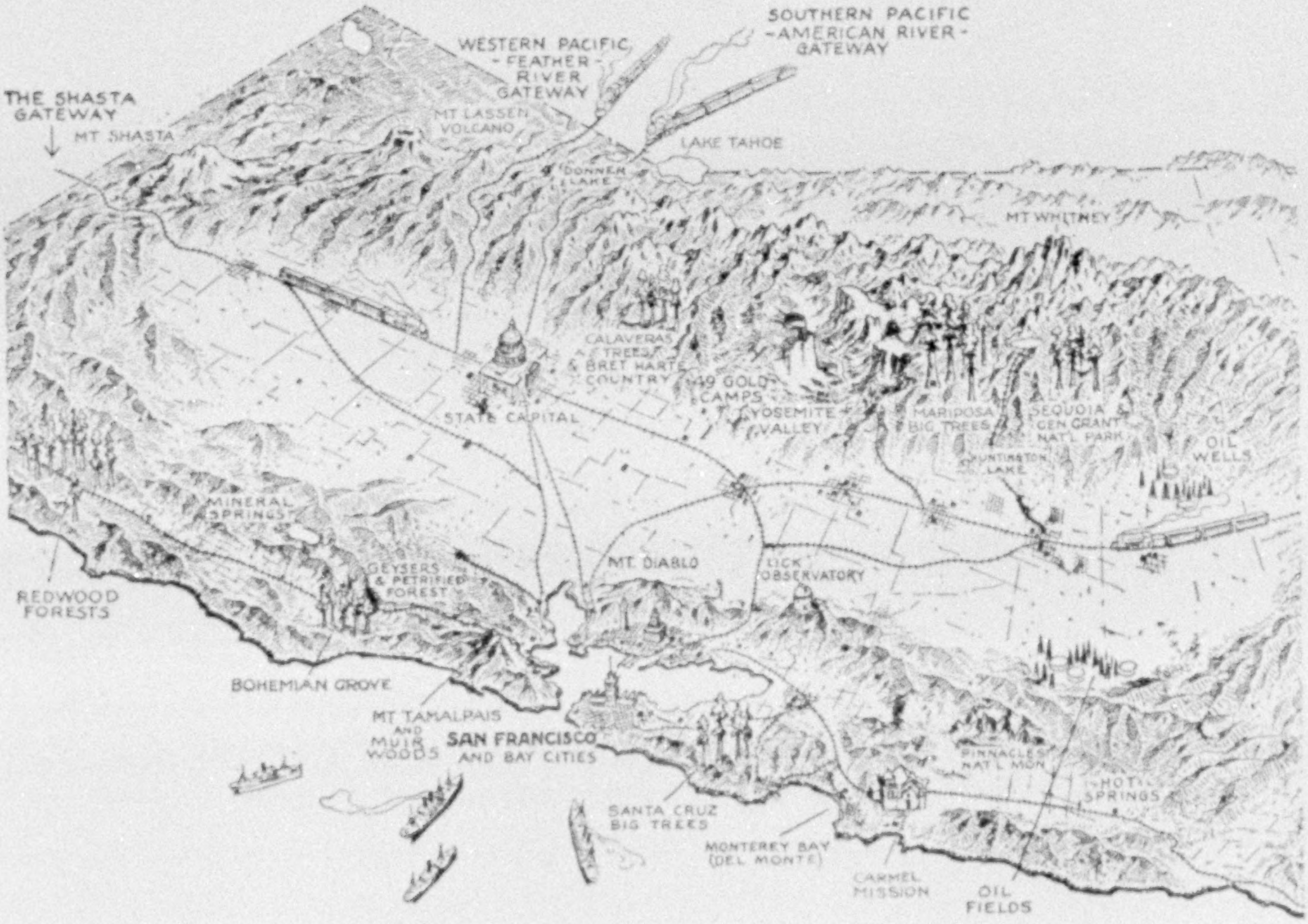
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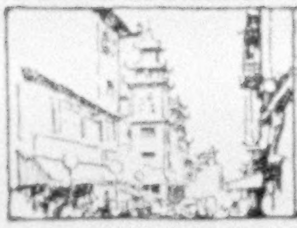
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GOLDEN GATE AND SEAL ROCKS

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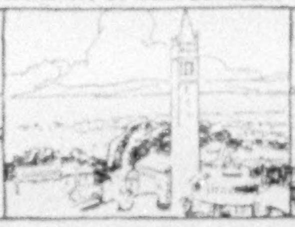
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ENTER California from the East through the American River gateway or the Feather River gateway, or from the North, past majestic Mt. Shasta.* You're almost immediately in the fast developing Country of Tomorrow—with the orchards and uplands of the Great Valley—the irrigated farms—the earliest ripening oranges, the Capital at Sacramento, and the historic Sacramento River flowing southward to the Golden Gate.

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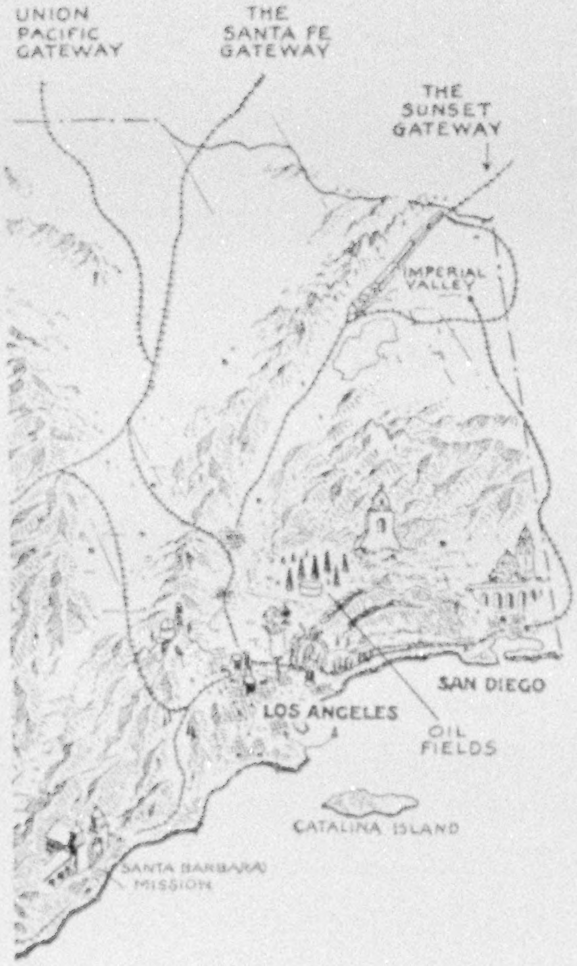
* The Shasta Route involves a slight additional cost from eastern points



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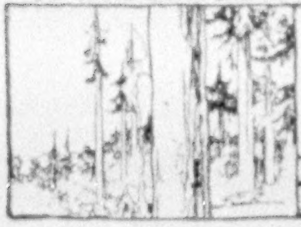
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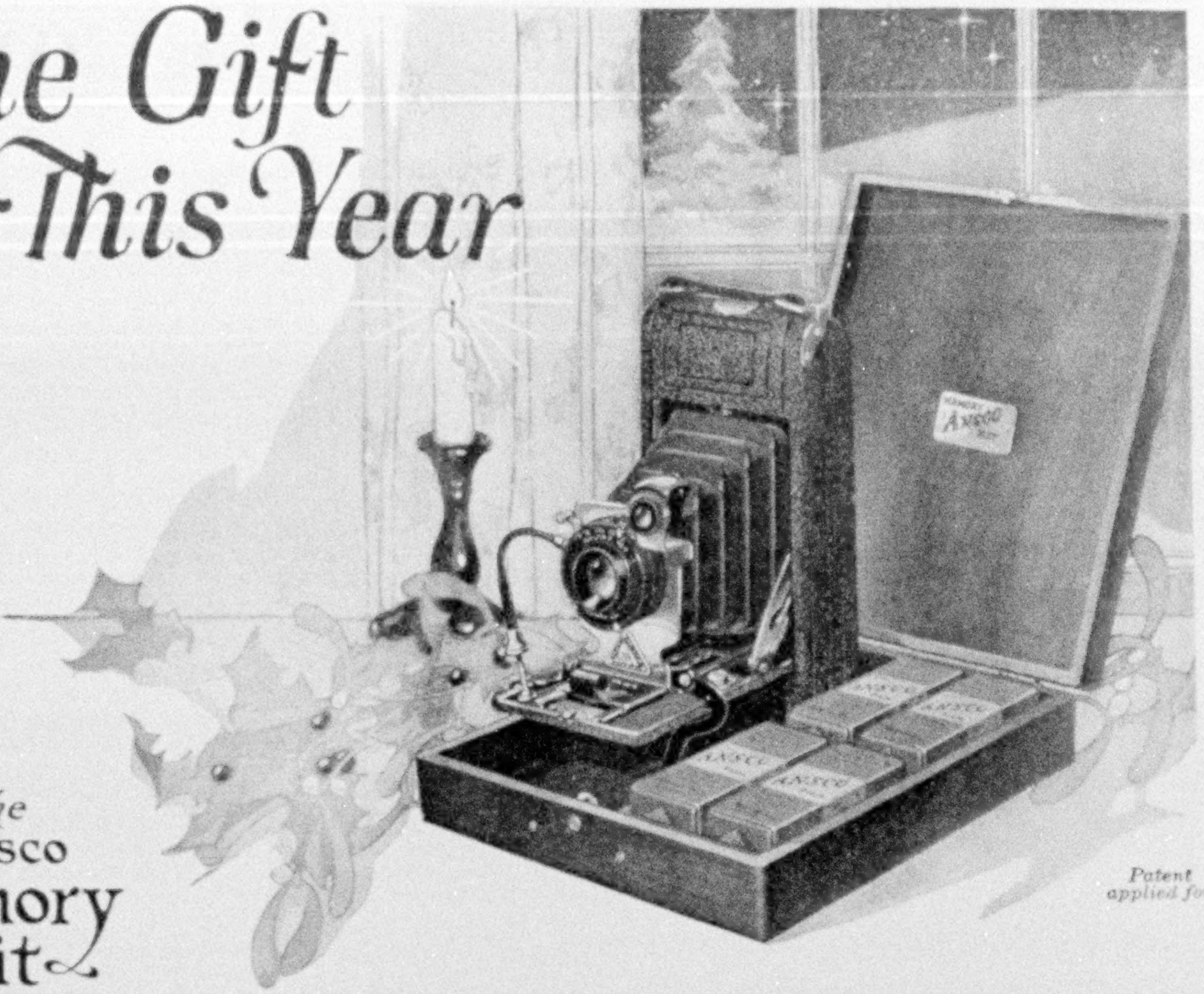

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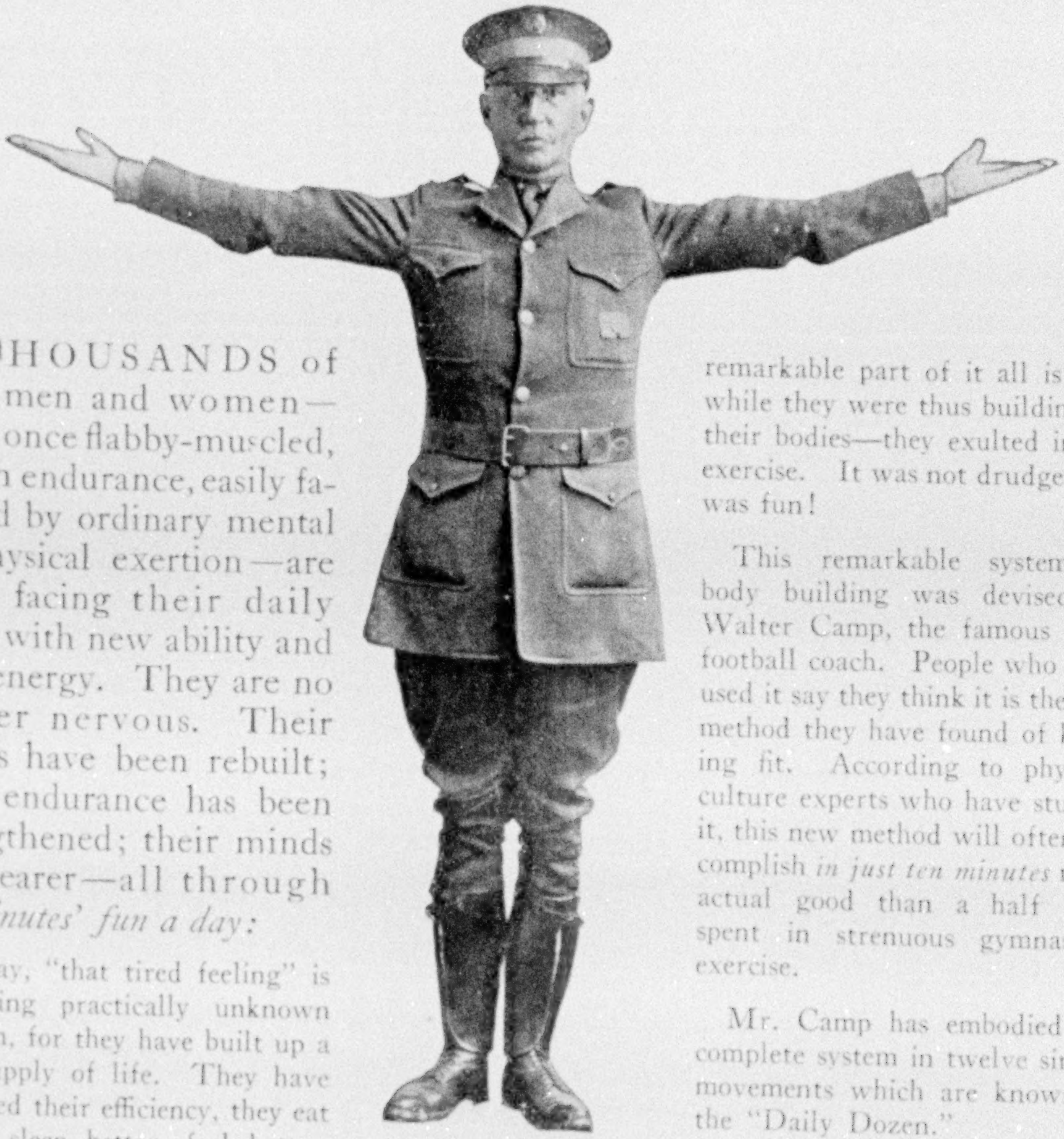

**Walter Camp
Originator of the
"Daily Dozen"**

THOUSANDS of men and women—once flabby-muscled, low in endurance, easily fatigued by ordinary mental or physical exertion—are today facing their daily work with new ability and new energy. They are no longer nervous. Their bodies have been rebuilt; their endurance has been strengthened; their minds are clearer—all through *ten minutes' fun a day:*

Today, "that tired feeling" is something practically unknown to them, for they have built up a new supply of life. They have increased their efficiency, they eat better, sleep better, feel better, and have found a new pleasure in living.

These people owe their improved health to the fact that they devoted a short time each day to a new scientific system of physical development. And the remarkable part of it all is that while they were thus building up their bodies—they exulted in the exercise. It was not drudgery, it was fun!

This remarkable system of body building was devised by Walter Camp, the famous Yale football coach. People who have used it say they think it is the best method they have found of keeping fit. According to physical culture experts who have studied it, this new method will often accomplish *in just ten minutes* more actual good than a half hour spent in strenuous gymnasium exercise.

Mr. Camp has embodied the complete system in twelve simple movements which are known as the "Daily Dozen."

The "Daily Dozen" were first used as a much-needed substitute for the tiresome setting-up drills used in training camps during the war. Their immense value was quickly apparent and before long members of the Cabinet, as well as other prominent men, were re-

lying on them as a guard against physical breakdown due to overwork.

Since the war, the "Daily Dozen" have been making thousands of busy men and women fit and keeping them so. And now the exercises are proving more efficient than ever. For a wonderful improvement has been effected in the system. Here it is:

With Mr. Camp's special permission, the "Daily Dozen" exercises have been set to music on phonograph records that can be played on any disc machine.

A chart is furnished for each exercise—showing by actual photographs the exact movements to make for every one of the "commands"—which are given by a clear voice speaking on the record. The most inspiring music for each movement has been adopted. A fine, rousing tune, such as the great Sousa melody, "The Stars and Stripes Forever," has a wonderful effect. It is elating; and it adds spirit to an activity that was monotonous before this invention.

Another reason for the wonderful effectiveness of the "Daily Dozen" is because they are based on natural methods of body-development. Take the tiger in the zoo. He is caged in, removed from his natural way of living—just as we, thru the centuries, have grown away from our natural way of living. Yet the tiger keeps himself in perfect physical condition—always. How?—by constantly stretching and turning and twisting *the trunk or body muscles.* And that is where Mr. Camp says we must look after ourselves! It is on just this principle that he has based his "Daily Dozen."

Try the Complete System FREE—For Five Days

You cannot fully appreciate the real joy of doing the "Daily Dozen" to music until you try it. So we want to send you, absolutely free for five days, the "Daily Dozen" on phonograph records and charts illustrating the movements. These full-size, ten-inch, double-disc records playable on any disc machine contain the complete Daily Dozen Exercises, and the 60 actual photographs accompanying the records show clearly every movement that will put renewed vigor and glowing health into your body—with only ten minutes' fun a day. A beautiful record-album comes free with the set.

No need to send any money. Simply mail the coupon below and get Walter Camp's "Daily Dozen" on phonograph records. Enjoy the records for five days, and if for any reason you are not satisfied, return them and you owe nothing. But if you decide to keep the records, you can pay for them at the easy rate of only $2.50 down and $2 a month for four months until the sum of $10.50 is paid. Thousands of people have paid $15 for the same system, but you can now get it for only $10.50 if you act at once.

Simply mail the coupon and see for yourself, at our expense, the new, easy, pleasant way to keep fit. You'll feel better, look better, and have more endurance and "pep" than you ever had in years—and you'll find it's fun to exercise to music! Don't put off getting this remarkable System that will add years to your life and make you happier by keeping you in glowing health. Mail the coupon today. Address Health Builders, Inc., Dept. 1812, Garden City, N. Y.

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Please send me for five days' Free Trial at your expense the Complete Health Builder Series, containing Walter Camp's entire Daily Dozen on five double-disc ten-inch records; the 60 actual photographs; and the beautiful record-album. If for any reason I am not satisfied with the system, I may return it to you and will owe you nothing. But if I decide to keep it, I will send you $2.50 in five days (as the first payment) and agree to pay $2 a month for four months until the total of $10.50 is paid.

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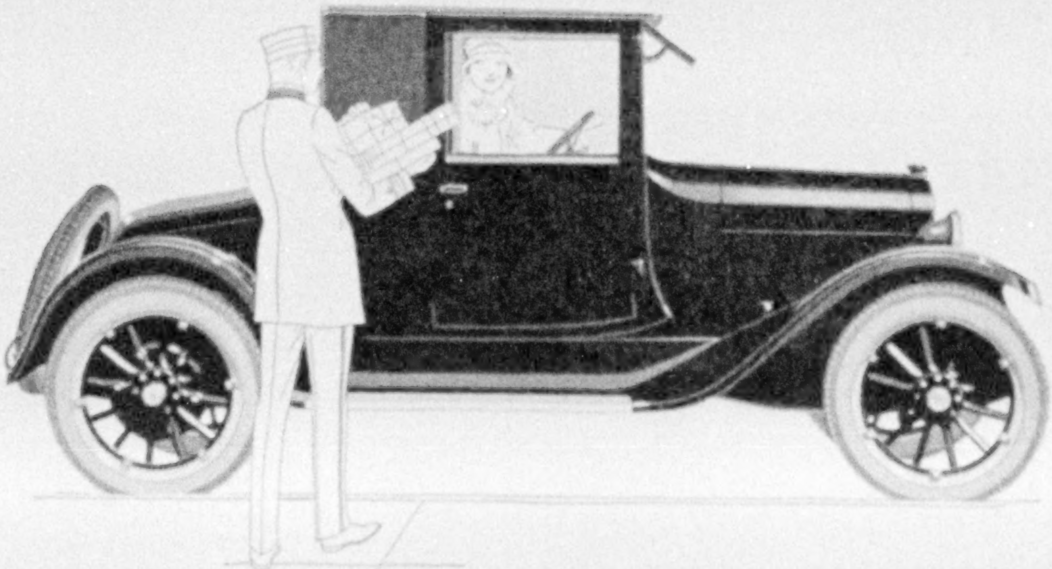
Such vital features are universal in their appeal. The continued, persistent demand for the Business Coupe is not surprising.

The Price is $980 f. o. b. Detroit



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Visit tombs sacred to Islam, the ruins of imperial Carthage and of great Roman cities, the Moorish Versailles at Meknes and schools where "Barbary Pirates" were formerly taught their trade.

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Stop at famous hot springs that work miracles of healing. Enjoy this "garden of Allah", where Moorish traditions, creeds, customs and liberties still rule the life and institutions of glorious barbarians, while this new travelers' paradise is still thoroughly oriental, little touched by western conventions and customs.

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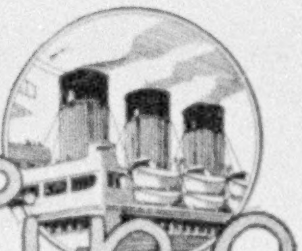
THESE North African Tours of three or four weeks are made in automobiles accommodating parties of four to twelve people and as luxuriously comfortable as Pullman cars; or tourists may take their own cars. Every modern comfort is assured at the "Hotels Transatlantique", which are under the direct control of the French Line at all principal towns and points of interest. Rates include all transportation and hotel expenses from the time you board the steamer at Marseilles or Bordeaux till you return to France. These tours may also be arranged from New York to New York.

Delightful features of these tours are the leisurely journeying, the small and select nature of the parties and the fact that you can arrange the time table to suit your convenience.

Write for interesting descriptive literature and detailed information.



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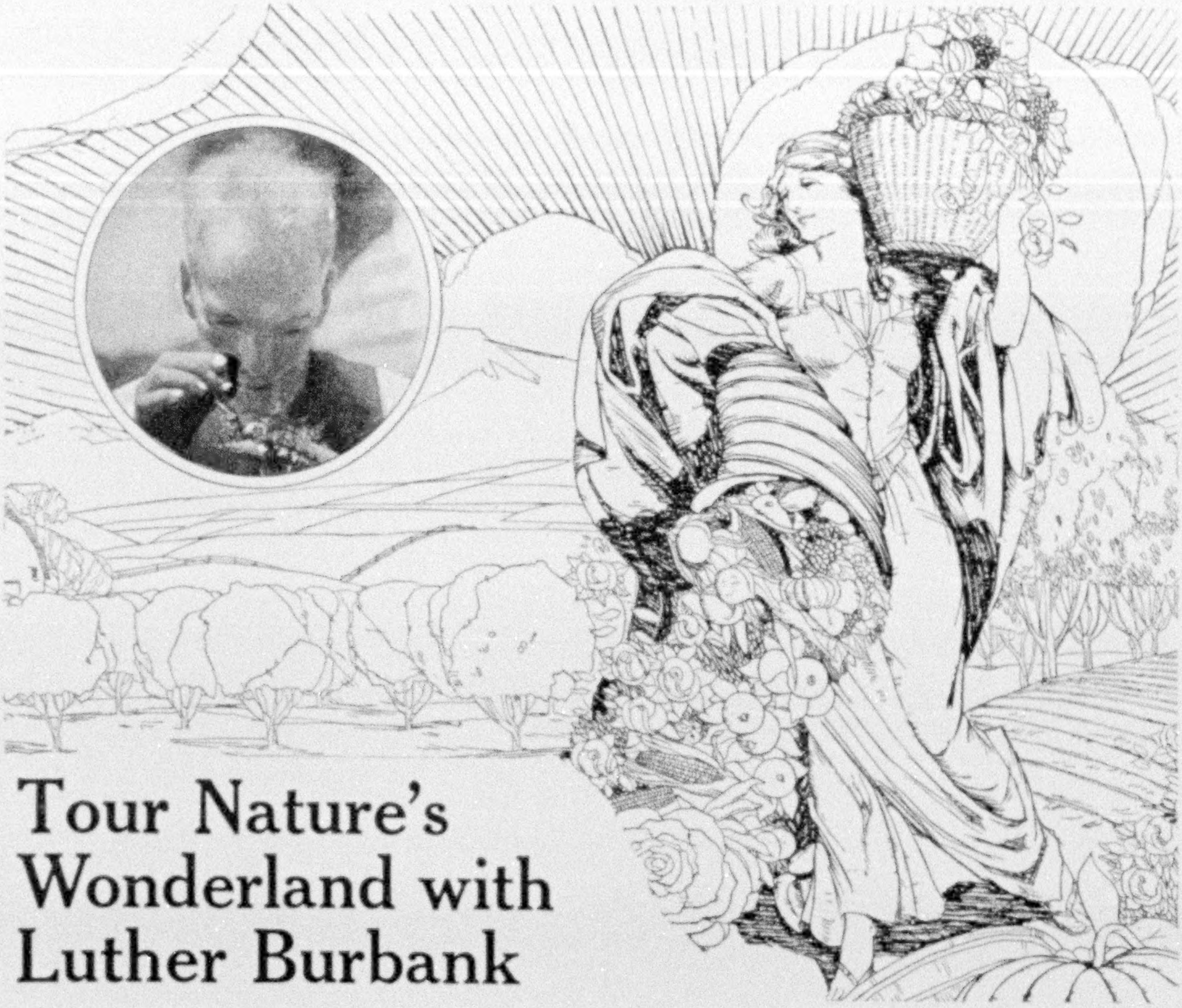

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And now Luther Burbank tells *you* his secrets. What flowers, fruits, vegetables you can grow in your yard or on your farm; how you can make each plant yield more; and even how you can breed new varieties—all this and more for the pleasure and profit of men, women, and children who are willing to learn from the master the absorbing story of

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By LUTHER BURBANK

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Because no advertisement can begin to do justice to the interest, beauty, and practical value of this remarkable library, an attractive booklet has been published to tell more about it. It contains a brief biography of Mr. Burbank, telling how he rose from a mere beginner to his present eminence; evidence of what others have done working in the manner of Burbank; illustrations from the complete set, in full colors; and constructive Burbank experiments that you may actually put into practice.

You will find this booklet well worth sending for. But only a limited edition has been published, so clip the coupon NOW—and send for it—TODAY.

HALF-HOUR EXPERIMENTS WITH PLANTS
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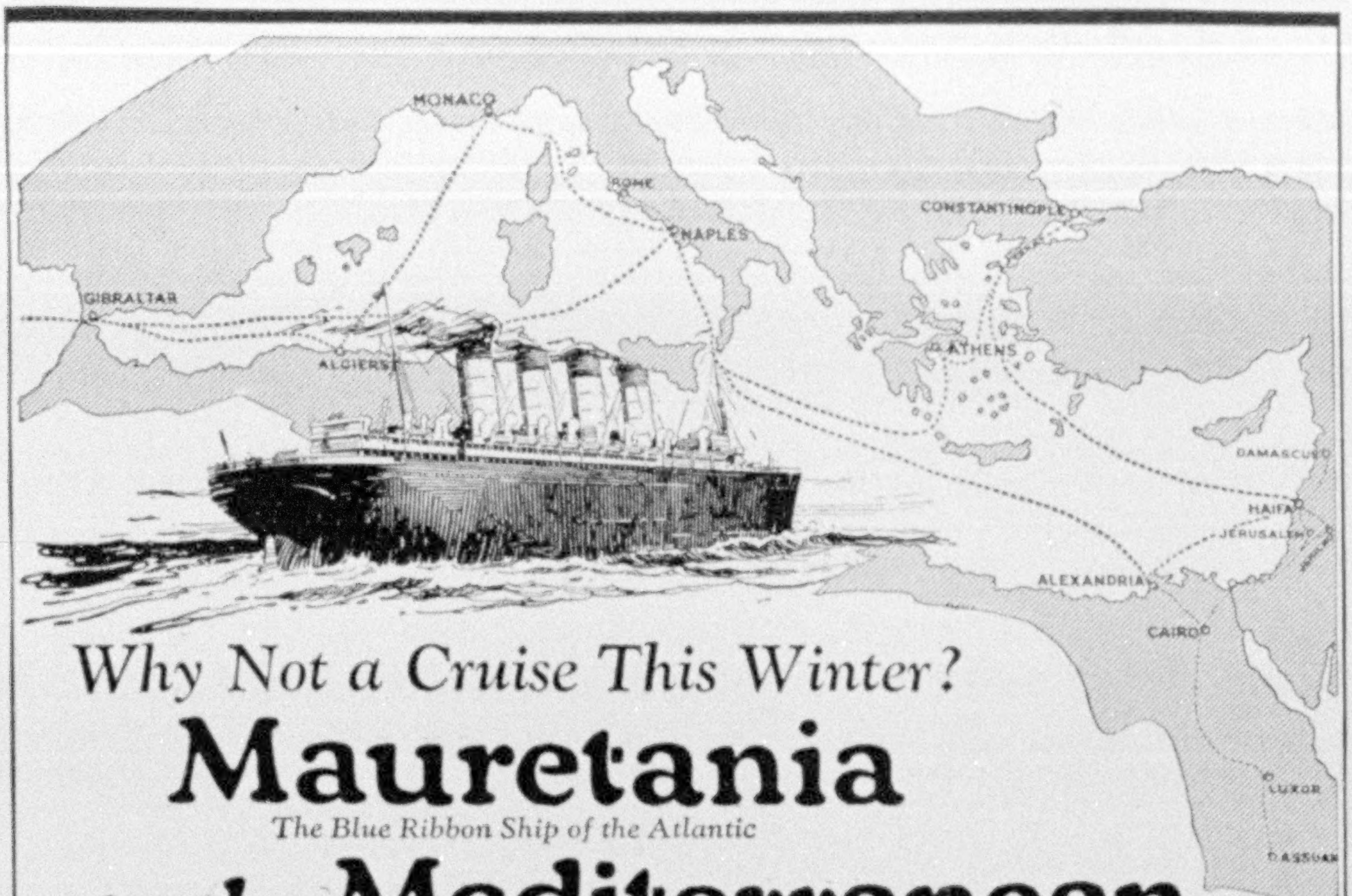

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Mauretania

The Blue Ribbon Ship of the Atlantic

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From New York, February 7th, 1923

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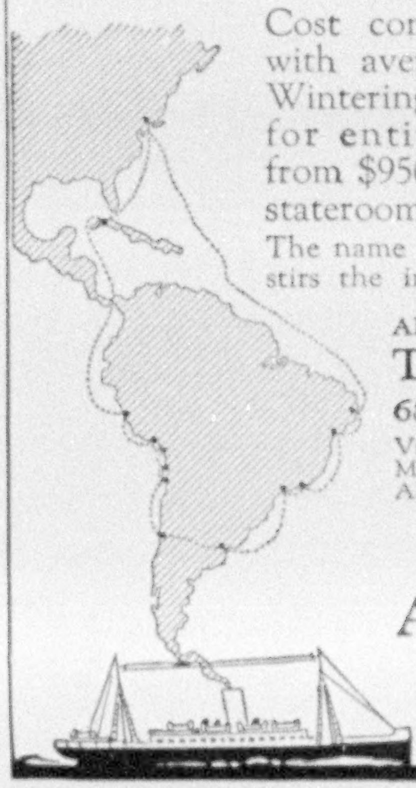
The name of every port of call stirs the imagination — brings vivid pictures to the mind's eye and inspires desire to go. Madeira, Gibraltar, Algiers, Monte Carlo, Italy (Rome and Naples), the Dardanelles, Constantinople, Greece (Athens, Eleusis, Marathon), Palestine, (Haifa, Jerusalem, Bethlehem, Nazareth, Tiberias, Damascus), Egypt (Cairo, Memphis and up the mystic Nile to Luxor, Karnak, Thebes, Assuan and the first cataract). Leisurely inland excursions, with every conceivable travel comfort are planned at all of them.

Mauretania to the Mediterranean is the luxury cruise this Winter, providing a degree of comfort and opportunities for shipboard entertainment never before attained in Mediterranean Cruises. It is under the well-known management of the Travel Department of the American Express Company in full cooperation with the Cunard Line. To insure ample choice of staterooms, reservation should be made NOW.



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These books, to a word, are the most fascinating things of their kind in the art of books. They actually have personalities! Mr. Seton has made striking sketches for the covers. These are stamped on the sides in place of the titles. Thus the personality of the outdoor genius is beautifully expressed on the outside of his books before a single one is opened.

"When I was a boy I hungered beyond expression for just such information as I have tried herein to impart. It would be a great joy to me if I could reach and help a considerable number of such heart-hungry boys tormented with an insatiate desire for the woods."

But open one of the Seton books. You will instantly be captured. Practically every page has its own special illustration! Bunny plays dead, the cub climbs a tree, how to lay a camp-fire, footprints of grizzlies, "Things to See in Wintertime"—for example, the constellations, and how to trace "Orion the Hunter and His Fight With the Bull."

The newest book from Seton's magic pen is included in this set. It is called: Woodland Tales—**this volume alone has 100 drawings by the author. Two Little Savages has 300 drawings; and so on!**

You breathe the pine-scented air; you listen to the rustling of a forest; you enjoy the romance and mystery of it all; you make friends with the wild animals, and interwoven with the dramatic incidents are hundreds of details of camp craft.

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Seton is universally beloved because he has the gift of doing three things at once: He entertains with his drolleries of speech and sketch; he diverts with his power to catch the romance and drama of outdoor life; he instructs, for he is internationally known as a great Naturalist.

Dr. Frank Crane says:

"I have turned to the livest man I know. He has lived much outdoors, knows the birds, beasts, and, as Saint Francis of Assisi would say, 'Our brother the sun and our sisters the winds and woods.' He is Ernest Thompson Seton."

The special binding, the cheerful and engaging style of the writing, the hundreds of unique illustrations, all combine to make a set that you and your family will always value. The highest recommendation we can give is—if you don't like it send it back. Such is the confidence with which we offer this unique set to you.

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WOODLAND TALES
ROLF IN THE WOODS

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Just mail the coupon and we will send a complete set to you on approval. Keep the books for five days—admire their make-up—browse through them—enjoy them, then decide whether or not you will keep them. But don't delay, or the limited edition will be gone.

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Please send me for FREE examination the 6-volume set of Ernest Thompson Seton. I will return them within five days if I am not delighted. Otherwise I will remit $1.00 promptly and $2.00 a month for only five months thereafter, in accordance with your special low price, or claim a 5% discount for cash in full.

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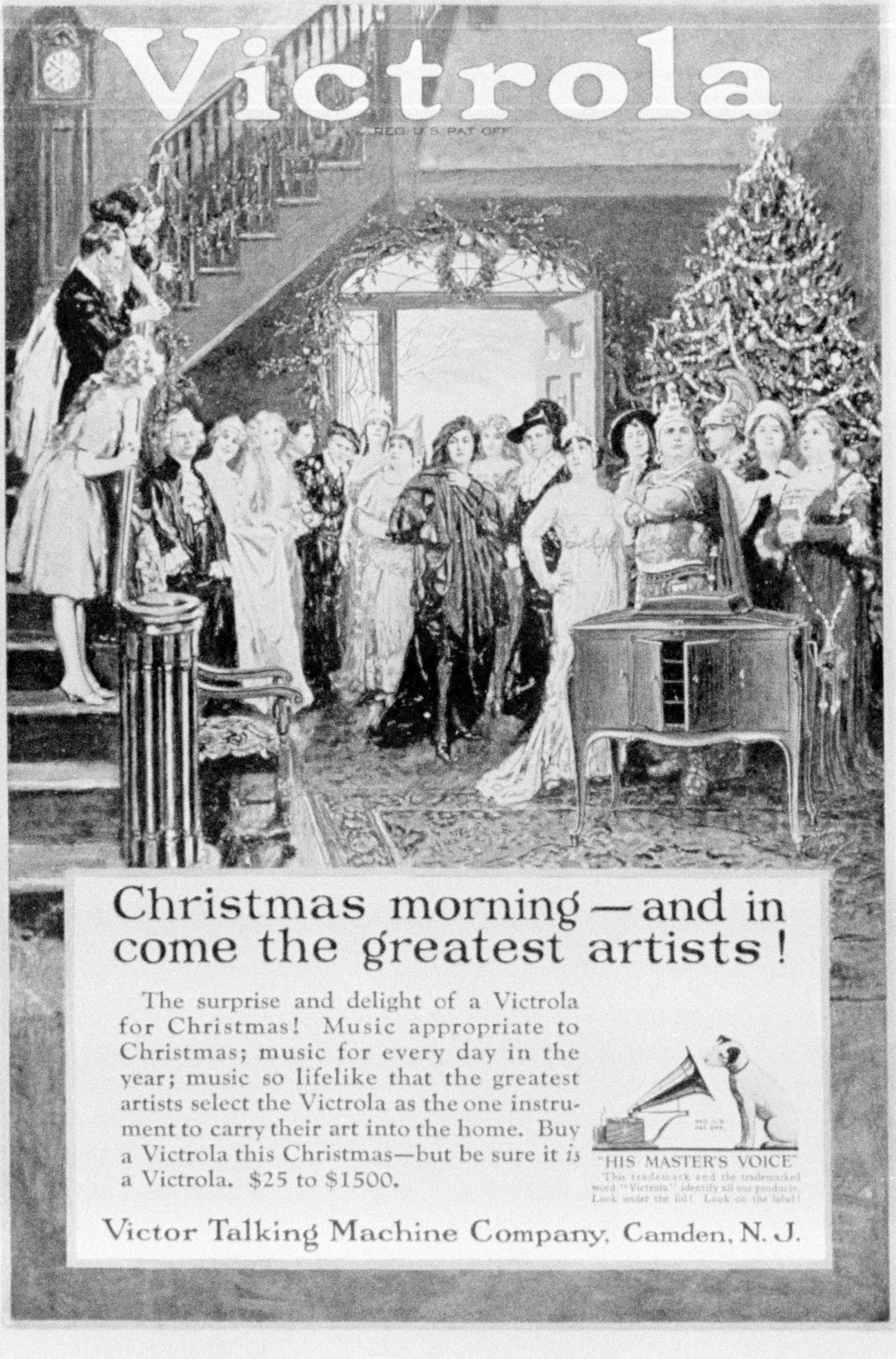

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XUM

VOL. XLII, NO. 6 WASHINGTON DECEMBER, 1922

THE NATIONAL GEOGRAPHIC MAGAZINE

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"THE GLORY THAT WAS GREECE"

By Alexander Wilbourne Weddell

Formerly American Consul General at Athens

AFTER some six years spent in Greece, after learning to love that land of "cloudless climes and starry skies" with something of the affection which I feel for my own country, I am fain to try to convey to those who may read these pages some of the enthusiasm and interest and affection for that soil which life there kindles.

In attempting this I am following a well-worn path, for the compelling charm of Hellas has been the theme of poets, philosophers, artists, historians, and travelers from the earliest days. Foremost among travelers must be named Pausanias, the Baedeker of the second century after Christ, whose minute work is a basis on which our archeologists commence to build to their sometimes startling conclusions. Since his time, save for that long period following the reign of Justinian at Constantinople, when a veil seems drawn over the Balkan Peninsula, through which invasions, internecine strife, massacres, and cruelties are dimly felt and seen, there have not lacked men of the stamp of Pausanias to penetrate the country and leave their impressions.

In those days such voyages required strength, fortitude, and courage of the highest order. How different, how very different, from the luxury now surrounding a voyage to Greece!

APPROACHING ATTICA BY SEA

Fate, working through my Government, decided me to go by water. Three days over summer seas from Sicily, three nights under starry skies, a fairy glimpse of Cerigo,—the Cythera of the poets, near to which Venus rose from the sea—then a long line of low-lying islands echeloned toward the coast, and there lay before my eyes the Plain of Attica, surrounded by hills, with "Athens, the eye of Greece," as its center (see map, page 574).

To every one sensitive to historical suggestion, to every one to whom beauty makes the supreme appeal, the first sight of this immortal city becomes the moment of a lifetime.

To the right rose Hymettus, famed now, as in ancient days, for the honey which the bees rifle from its flowers; to the left, and nearer, the island of Salamis, with its deathless memories; a bowshot away, Psyttalia, where Aristides and his band cut down the flower of Persian chivalry, after the naval battle of Salamis; still farther to the left, the ranges of Parnes, extending in a full, voluptuous curve toward the east.

Sweeping this panorama with powerful glasses, the city revealed itself more clearly, wearing "like a garment the beauty of the morning," and, outtopping all, the Acropolis, with the Parthenon as its diadem.

In its still beauty, its majesty and its tenderness, the scene had a vague unreality. I thought of the spirit hand "clothed in white samite, mystic, wonderful," which rose from the lake in the poet's vision and sank again.

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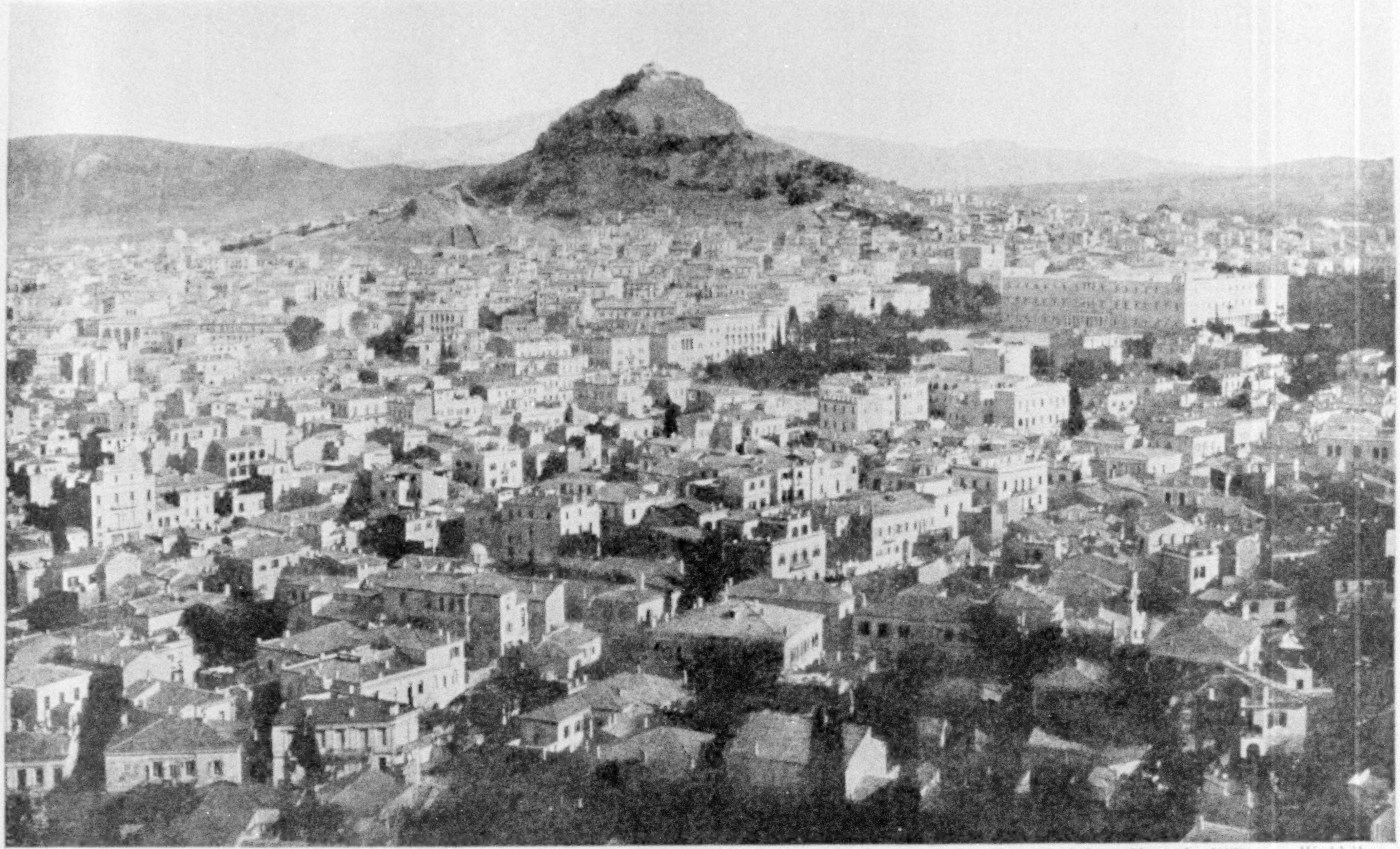
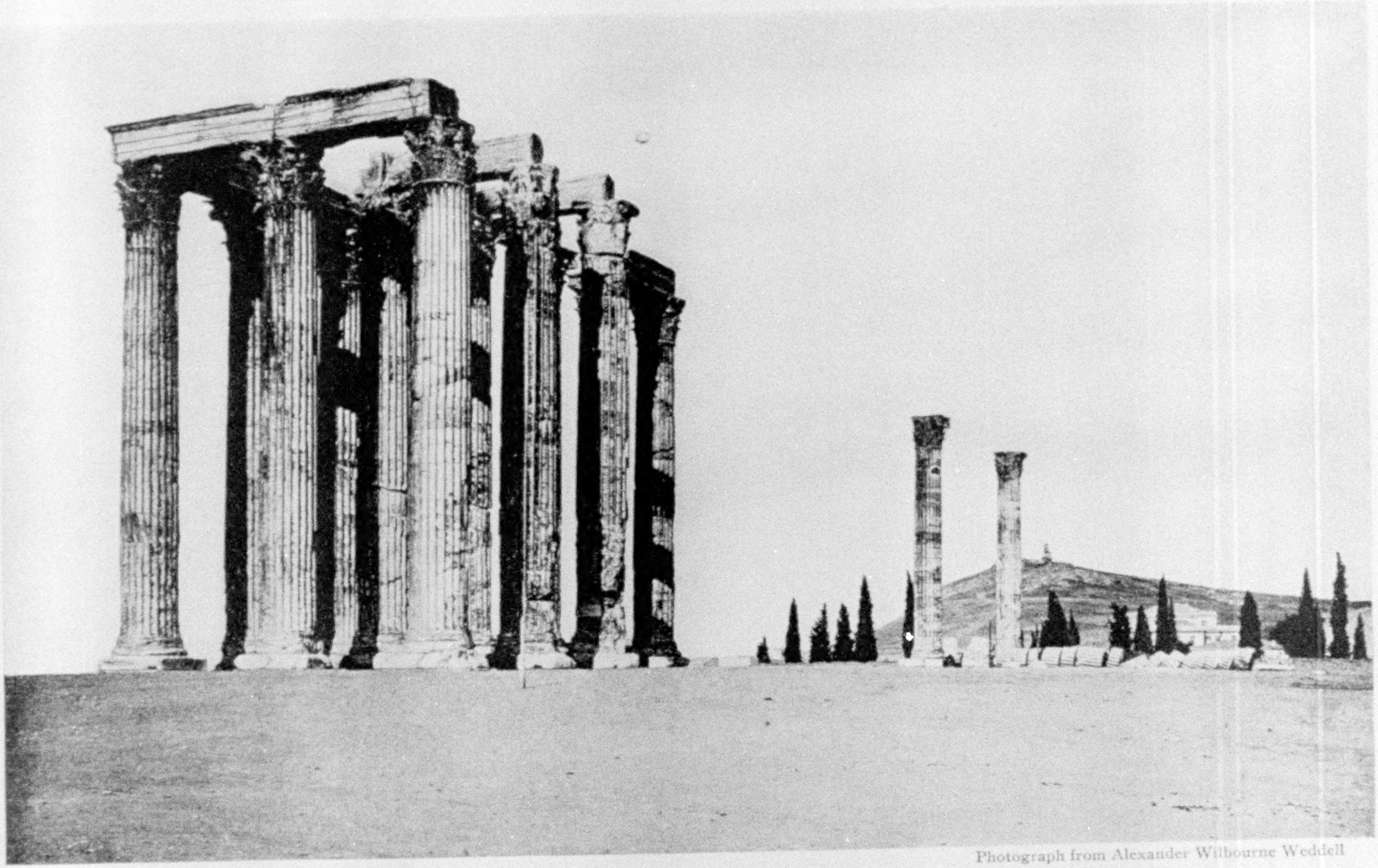


Photograph from Alexander Wilbourne Weddell

A VIEW OF ATHENS FROM THE ACROPOLIS

Facing in an easterly direction, the hill of Lykabettos is directly in front, crowned by a little chapel dedicated to St. George—a saint who is to-day held in high repute in Greece. In the distance is seen Mount Pentelikon, from which came the marble used in the construction of the buildings on the Acropolis.



Photograph from Alexander Wilbourne Weddell

THE RUINS OF THE TEMPLE OF OLYMPIAN ZEUS

The present ruins date from the age of Hadrian. Legend says that this is the place where the last water of the Deluge disappeared, the first sanctuary having been erected here by the grateful Deukalion. The columns now standing are of exquisite beauty, and the golden brown color lent to them by time adds to their charm. On the last column in the group lived a long line of pillar hermits, or "stylites" (see text, page 577). The last of these died about 1860.

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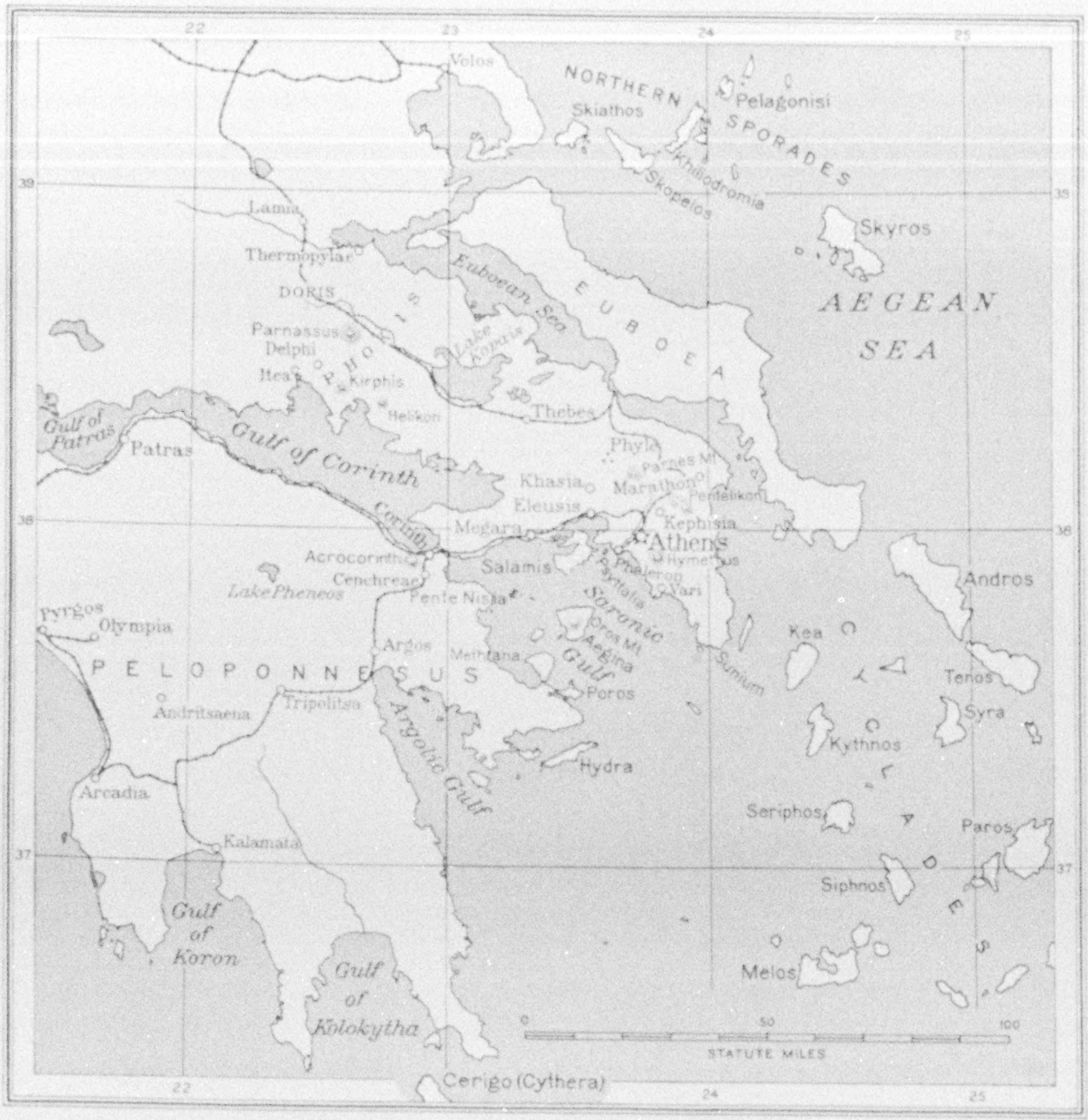

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Velos
NORTHERN SPORADES
Skiathos
Pelagonisi
Khiliodromia
Skopelos
Skyros
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Thermopylae
DORIS
Euboean Sea
EUBOEA
PHOCIS
Parnassus
Delphi
Itea
Kirphis
Helikon
Lake Kopais
Thebes
Gulf of Patras
Patras
Gulf of Corinth
Corinth
Phyle
Parnes Mt
Marathon
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Khasia
Eleusis
Kephisia
Megara
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Hymettus
Acrocorinth
Salamis
Phaleron
Vari
Cenchreae
Lake Pheneos
Pente Nisia
Saronic Gulf
Pyrgos
Olympia
Argos
Methana
Oros Mt
Aegina
Sunium
Kea
Andros
PELOPONNESUS
Tripolitsa
Poros
Tenos
Syra
Andritsaena
Argolic Gulf
Kythnos
CYCLADES
Hydra
Arcadia
Seriphos
Paros
Kalamata
Siphnos
Gulf of Koron
Melos
Gulf of Kolokytha
0
50
100
STATUTE MILES
Cerigo (Cythera)

Drawn by A. H. Bumstead

A MAP OF SOUTHERN GREECE—THE ATTIC PLAIN AND THE PELOPONNESUS

The area of Attica (the ancient division of Greece comprising the territory of Athens), together with the island of Salamis, which belonged to it, was hardly more than 700 square miles. Its population in its flourishing time was probably about 500,000, of which nearly four-fifths were slaves.

Thackeray, a tourist of the 40's, calls the hills around Athens "aristocratic" and defends the use of the term; it seems the one word capable of describing the grace and noble reserve of these heights.

Few people have said such charming things of hills as the satirist in speaking of these; amid much that displeased him, *their* appeal was irresistible. "Round this wide, yellow, barren plain," he says, "there rises, as it were, a sort of chorus of the most beautiful mountains—the most elegant, gracious, and noble the eye ever looked upon. These hills did not appear at all lofty or terrible, but superbly rich and aristocratic."

Later he tells us how "the hills rise in perfect harmony, and fall in the most exquisite cadences." This was the panorama unfolded to my eyes.

Often, in later days, on these encircling hillsides I have sensed the deep violet which they wear at eventide as something so close and so palpable that it seemed it could be felt on hand and cheek like moisture borne by a southern breeze.

THE HARBOR OF PIRÆUS, SEAPORT OF MODERN ATHENS

It is a ride of only 20 minutes by electric railway from Piræus to the Greek capital. In ancient times the port was connected with Athens by the celebrated Long Walls.

It is a tiny country we are about to enter. The Attic plain stretches from the sea in an irregular oval from south to north; the entire province contains a bare 700 square miles.

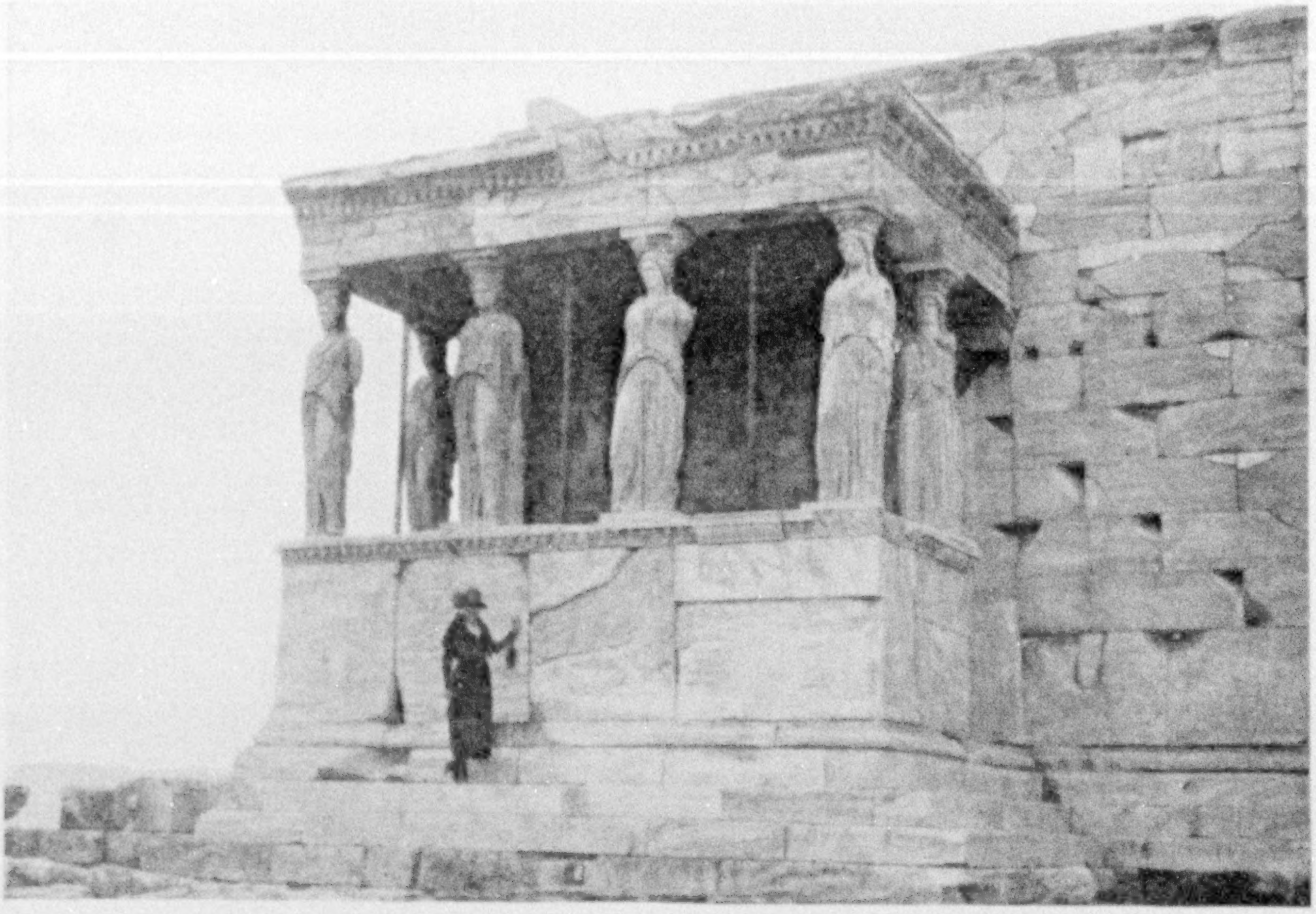
Yet Attica "balances in the universe the glory of Imperial Rome." "Remember well, Quintius," writes Cicero to his friend, "that you have command over the Greeks, who have civilized all peoples, in teaching them gentleness and humanity, and to whom Rome owes the light she possesses." Cicero, of course, meant Attica, for it was in this little country that what we call the Greek genius was most effectively at work in the fifth century before our era.

SPARTA AND ATHENS COMPARED

Chateaubriand, spurring his horse along the Sacred Way from Eleusis, through the defile of Daphne, over a road which had felt the footsteps of the Three Hundred marching to glorious death at Thermopylæ, which had shaken to the tread of Sulla's legions in a later day, which had quivered as Attila and his rude hosts advanced with barbaric shouts toward Athens, drew rein to muse over the wonder and the loveliness here revealed to him:

"Sparta and Athens have kept even in their ruins their different characters; those of the former are sad, serious, and solitary; those of the second are laughing, light, and inhabited. On viewing the country of Lycurgus all one's thoughts became serious, masculine, profound; the soul is fortified and seems to put on a glory and expand; before the city of Solon one is as enchanted by the prestige of genius; one is possessed by the idea of the perfection of man, considered as a rational and immortal being.

"Love of country and liberty was not for the Athenians a blind instinct, but an enlightened sentiment, founded on this taste for the beautiful in all its manifestations with which Heaven had so liberally endowed them; in fine, in passing from the ruins of Sparta to those of Athens I felt that I would have wished to die with Leonidas and to live with Pericles."



Photograph by W. P. Whitlock

THE PORCH OF THE MAIDENS (SEE PAGE 593)

The figure just above the American girl is a copy placed there to fill the space made vacant by Lord Elgin when he took one of the maidens to the British Museum.

Landing at Piræus is not more disagreeable than at any other Mediterranean port. There is the same confusion, the same noisy boatmen, the same ineffective harbor police, equally powerless with those in Spain and Italy to control their turbulent compatriots. Piræus was once famous for the high standard of its municipal government; but this was long ago, and it is now as dirty and unattractive a port as one can find in the Mediterranean.

Attracted by the name "Themistocles," which one of the leather-lunged boatmen gave as his own, my friend and I surrendered ourselves to his mercy, and through the noise and tumult finally reached the shore. Customs formalities disposed of, we stowed ourselves on an electric train which took us in 20 minutes to Athens.

This electric railway deserves a special word of praise. It is one of the best things in modern Greece,* well equipped and well run. Formerly travelers arriving at Piræus had a disagreeable drive over the six miles which separate the port from the capital. The victims, in language more or less blasphemous, have given their opinion of the Greek road, the Greek coachmen, the Greek horses, and the Greek road-houses, which the trip fixed indelibly on their minds. Hence this bouquet thrown at random!

At Athens we found accommodation in a hotel which was once the home of the French Archeological School. From the balconies we looked down on Constitution Square, the heart of the city, and had a superb view toward the Acropolis and toward Hymettus.

The latter was just changing the dusty garment worn through the glaring day and over her shoulders was slipping a robe of deep violet of exquisite shade and quality; the sun was dropping behind Salamis; long shadows crept up the valleys and into the depths of the friendly hills; a star, which must have been Venus, trembled over the still waters of the Saronic Gulf; from the King's Garden, less than a hundred yards away, came the voices of nightingales.

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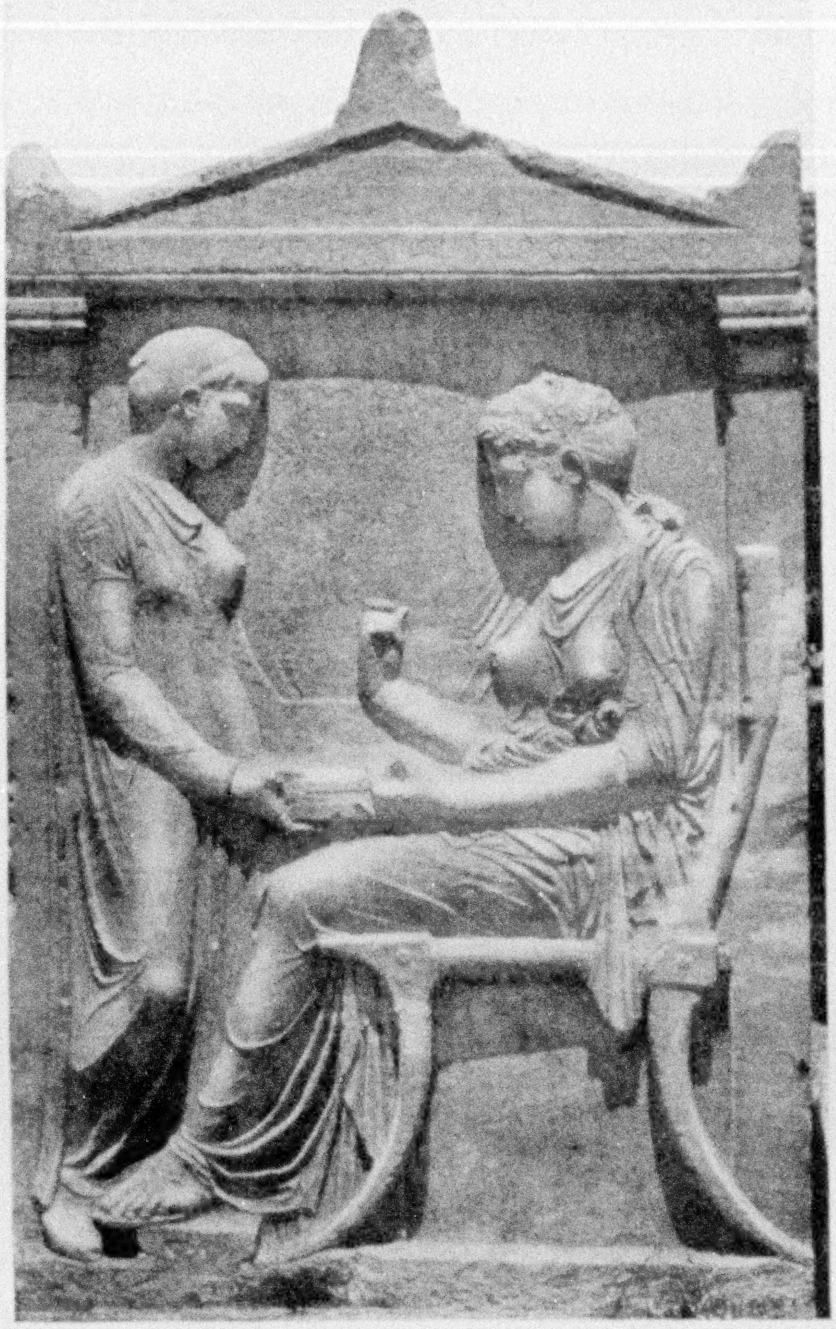
*For accounts of modern Greece, see in the NATIONAL GEOGRAPHIC MAGAZINE for October, 1915, "Greece of To-day," and for February, 1921, "The Whirlpool of the Balkans," by George Higgins Moses.

This was my introduction to Athens.



Photograph from Alexander Wilbourne Weddell

STELE OF HEGESO IN THE CEMETERY OF THE CERAMEICUS

This is, perhaps, the most beautiful of all the gravestones in the ancient cemetery. It dates from the fourth century B. C. and represents a noble lady at her toilet, attended by a female slave. As in so many of the Greek sculptures, the draperies are worthy of special study (see page 602).

THE FIRST WALK THROUGH THE CITY

My friend and I had determined that we would scorn the tribes of Baedeker and Joanne and not be inveigled into an ordered, exact trip to the lovely sights and scenes to which we looked forward; so it was perhaps 10 o'clock, after a breakfast of delicious fruit, with coffee and crisp toast and Hymettus honey, in which latter we each fancied we could detect the vague fragrance of favorite flowers, that we set forth on our thrilling voyage of discovery.

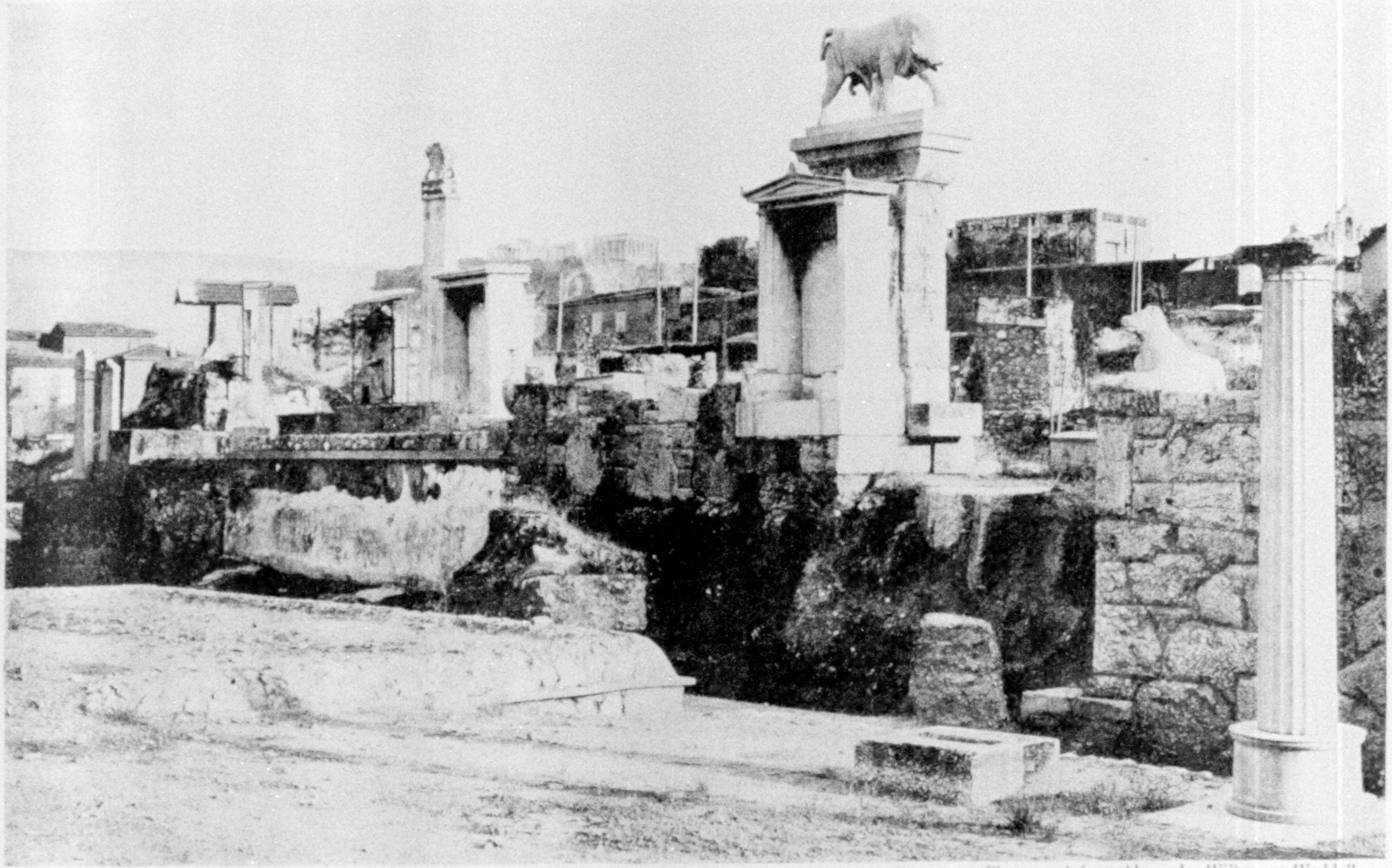
Straight away from the hotel runs a broad avenue named after the wife of King Otho—Amalia. Down this we wandered slowly, leaving the Royal Palace on the left and skirting the King's Garden.

Beyond a distant glimpse of the Acropolis, the first classic monument our eyes rested on was the Arch of Hadrian. This Emperor, it will be recalled, was one of the principal benefactors of Athens in the value and character of his gifts. These embraced a water-supply, a reservoir which is in use to-day, a library, and perhaps the Temple to Olympian Zeus. He also built the new city beyond the old one, and the Arch at which we looked marked the dividing line between the Greek and Roman towns (see illustration, page 592).

We passed through the Arch and, turning to the right, entered the precincts of the Temple of Zeus. The temple, like the buildings on the Acropolis, is of Pentelic marble, to which time has given an exquisite golden brown color, especially on the side which faces the sea. Two of the columns stand detached like sentinels and by a happy accident close the three-mile tangent formed by the Syngros Avenue, which links up modern Athens with its little seaside resort, Phaleron.

We took a seat on the base of one of the columns and looked up to its top. There, during a series of years, a long line of hermits had passed their nights and days until death brought them release (see illustration, page 573).

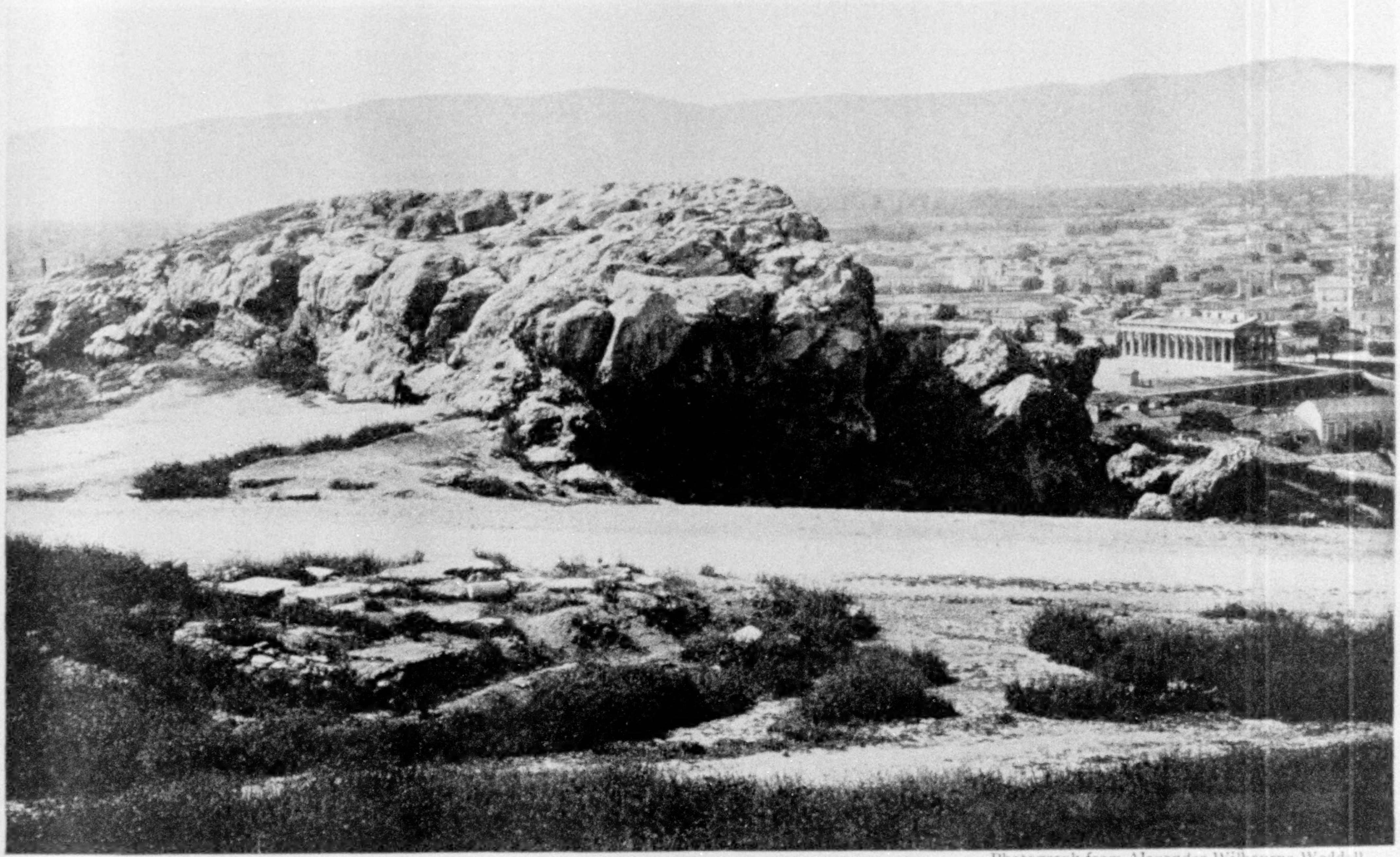
During my stay at Athens I was assured by an old Athenian that he remembered as a child visiting the precincts of the temple and carrying gifts of bread and fruit to



Photograph from Alexander Wilbourne Weddell

THE CEMETERY OF THE CERAMEICUS (SEE PAGE 597)

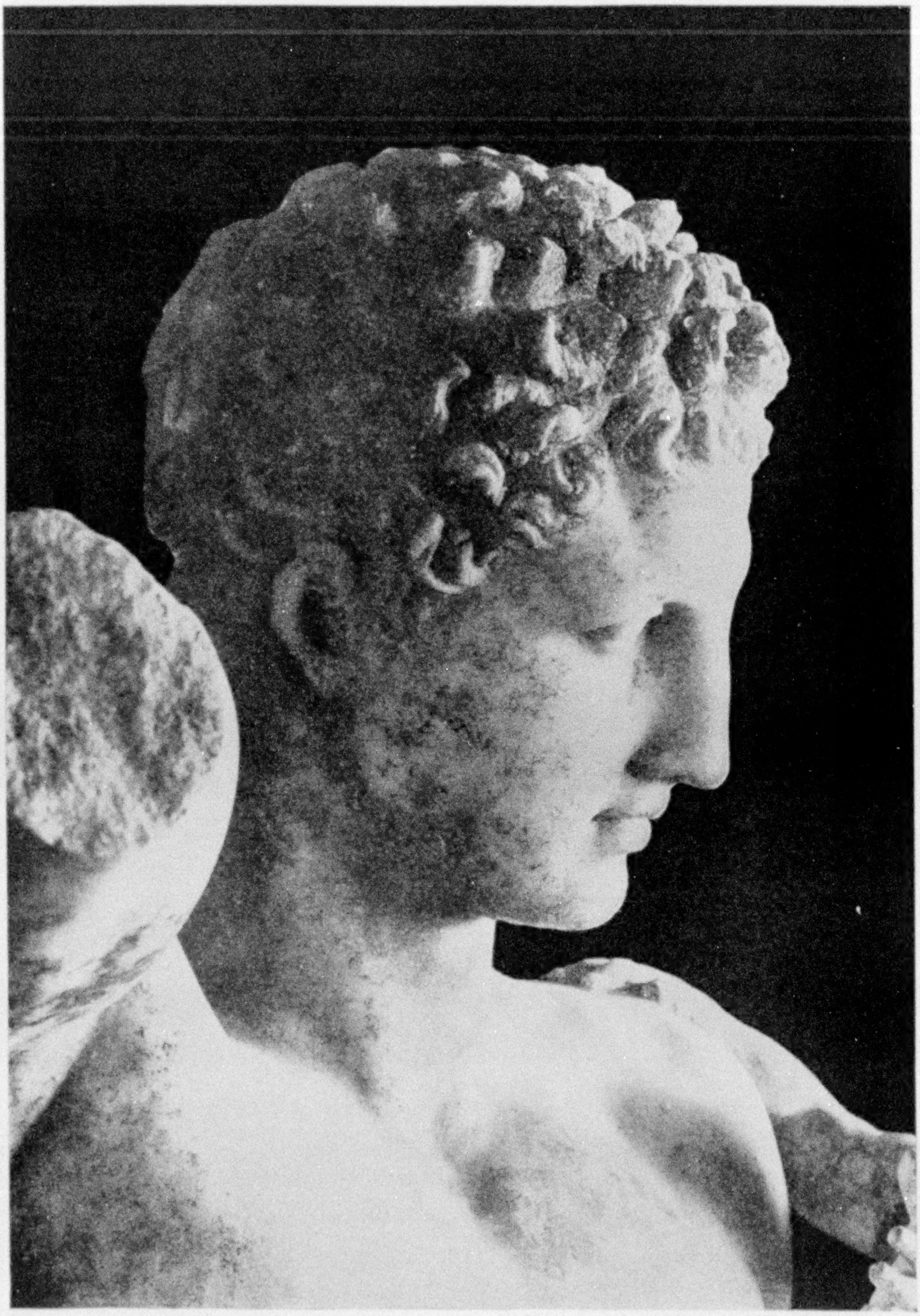
Just outside the city gates, this Street of Tombs led to the garden called the Academy on the banks of the Illissus—the favorite haunt of Plato. In the distance is seen the Acropolis, with the Parthenon and the Erechtheum. To the right, but invisible in the picture, lie olive groves. In such surroundings one thinks of Shelley's reference to the grave of Keats—"It might make one in love with death, to think that one should be buried in so sweet a place."



Photograph from Alexander Wilbourne Weddell

WHERE THE ANCIENT COURT OF THE AREOPAGUS SAT (SEE TEXT, PAGE 597)

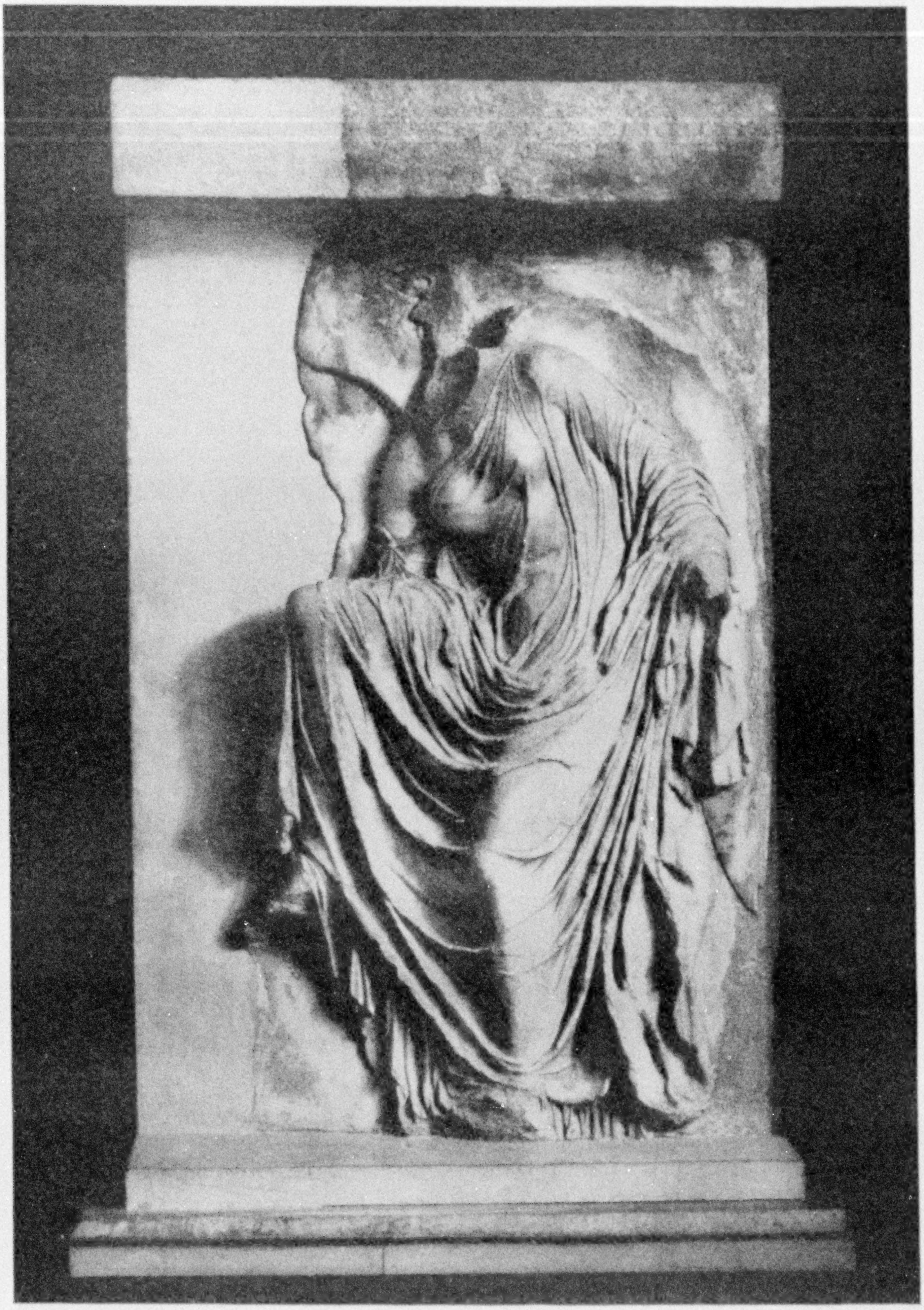
The court is said to derive its name from the fact that Ares (the Mars of the Greeks) was the first person tried here. Popular tradition also assigns this as the spot from which St. Paul, in the spring of A. D. 54, delivered a sermon of which we have an account in the seventeenth chapter of Acts. In the distance is the Parnes Range, while on the right, and immediately below, is the Theseion, one of the most perfectly preserved monuments of ancient times.



Photograph from Alexander Wilbourne Weddell

THE HERMES OF PRAXITELES

This matchless marble, discovered at Olympia in 1877, is considered by many critics the finest example of Praxitelean sculpture extant. It is interesting to recall that while our modern art lovers pay hundreds of thousands of dollars for masterpieces on canvas, the people of Cnidus once refused to sell a statue of Aphrodite by Praxiteles to King Nicomedes, although that monarch offered in exchange to cancel the whole debt of the city, which was enormous.



Photograph from Alexander Wilbourne Weddell

VICTORY FASTENING HER SANDAL

This exquisite fragment was one of a number of reliefs representing Victory, forming a balustrade around the Temple of Athena Nike, or Nike Apteros. Even to the unskilled eye, this fragment is a feast of beauty in the marvelous delineation of the curves of the body and the masterly treatment of the draperies. It probably dates from the fourth century B. C. (see text, page 591).

the stylite who then dwelt on the column and who would let down a basket to receive the offerings of visitors.

ATHENS HONORED VICTORS IN CONTESTS OF THE ARTS

We retraced our steps through the Arch of Hadrian by a narrow street known as the Street of Lysicrates and which is probably the site of the ancient Street of the Tripods.

In the age of Pericles, apart from the athletic contests which took place at the Olympic and other games, there were contests in Oratory, in Poetry, and in Music. At Athens the victor in one of these games was given a brass tripod, with the privilege of erecting a pedestal on which to place it, somewhere in the city.

At the end of the little street down which we walked stands, in almost pristine loveliness, perhaps the only surviving monument of this character. It is the exquisite little structure—the oldest extant—erected by an Athenian, Lysicrates, on which to place the tripod awarded him as the organizer of a choir of young men which won a prize in vocal music in one of the games in the fourth century B. C.

This little structure was built into a convent in medieval times and was thus preserved from destruction. The convent was standing in Byron's day and he was a guest there in 1811; it was not until some years later that the monument was restored at the expense of the French Government.

IN THE THEATER OF DIONYSUS

It is but a stone's throw from the Monument of Lysicrates to the Theater of Dionysus, or Bacchus, to give it its Roman name (see pages 597 and 598).

Like most Greek theaters, the tiers of seats are built into the hillside, while its arrangement is such that the spectators viewing the actors had in the distance the sea; so that as Tragedy, "in scepter'd pall, came sweeping by," there was ever present to the eye an expanse of land and water to heighten the effect produced by the action of the play.

And what names this place calls up—Æschylus, Sophocles, Euripides, Aristophanes—the long roll of the great ones of Greece!

It is related of Socrates that once, when he was being lampooned and burlesqued in this theater, he rose gravely from his seat and stood for a little space, until the audience could make a comparison between the original and the copy.

The theater of to-day is Roman; the site only is from the earliest period. It will be recalled that the Romans introduced the stage in the modern sense; the Greek actors wore a high-laced boot with a thick sole, called a cothurnus, to raise them above the chorus.

THE FRAGMENTS OF THE EXQUISITE TEMPLE OF WINGLESS VICTORY

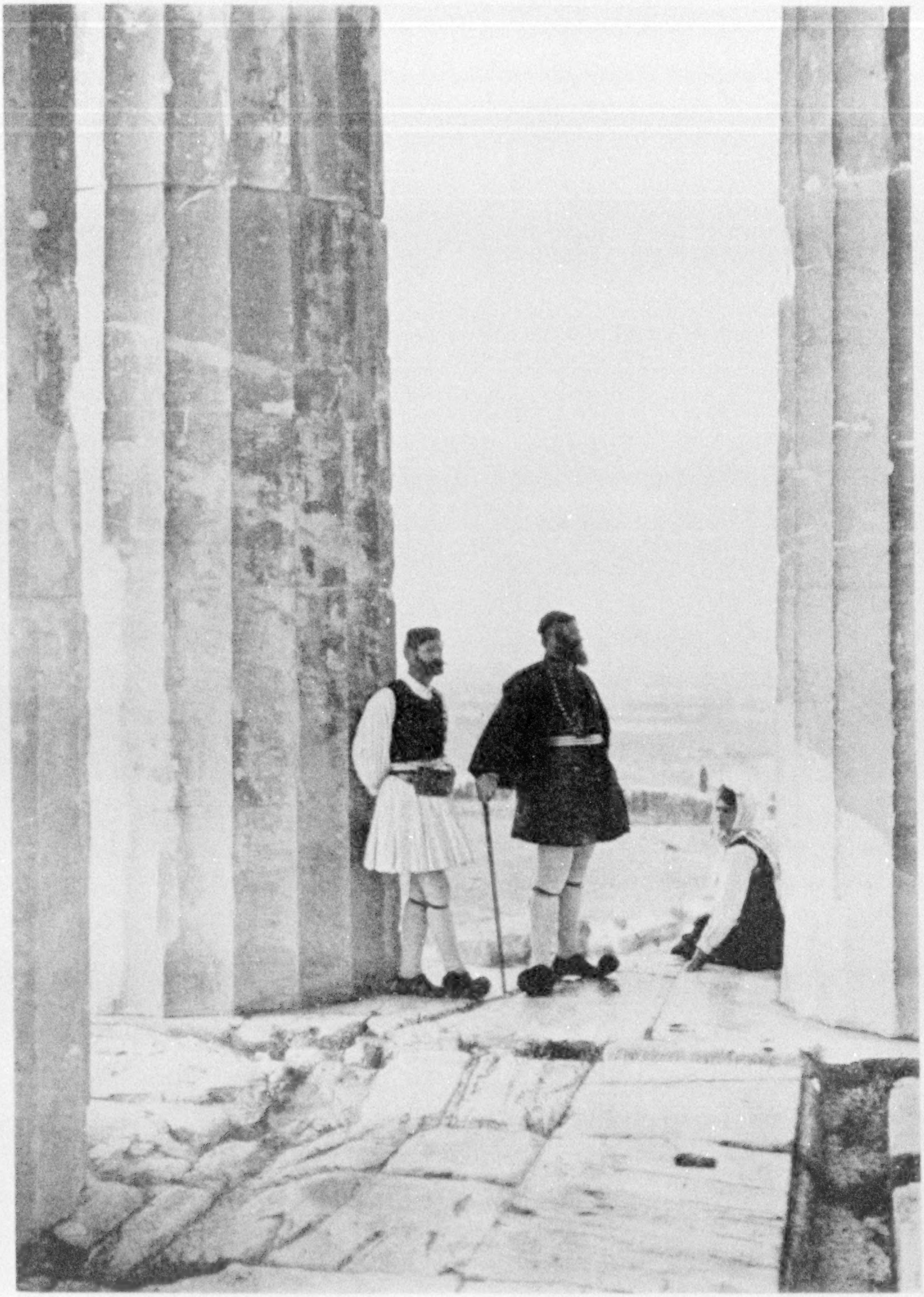
Leaving the theater, we walked slowly to our goal, passing on the right the precincts of Æsculapius and various remains, including the charming Odeion built by Herod of Attica, another Roman benefactor, of the second century A. D., on to the iron gates which mark the lower precincts of the Acropolis. Passing through these and walking up the long incline, we came to a turning on the right and saw before us the gates, or Propylæa, of the Acropolis.

High up on the right was the little Temple of the Wingless Victory, while a corner of the Parthenon could be descried over the retaining wall. My impatience was such that I broke into a run, bounding up the steep stairway which leads from the outer gate of the Propylæa to the upper level, and arrived panting on the platform on which is the Victory Temple.

Here we stood and drank in the marvelous view, and then, turning, ran our eyes caressingly over the shrine. Nothing can exceed in delicacy and charm this exquisite little structure. Four Ionic columns, each some thirteen feet in height, support the architrave, but so perfect are their proportions that it is only when standing beside them that one realizes that they are twice the height of a tall man.

This diminutive, yet perfect, edifice was demolished by the Turks in order to build a bastion, and was later reconstructed with the fragments of the original building.

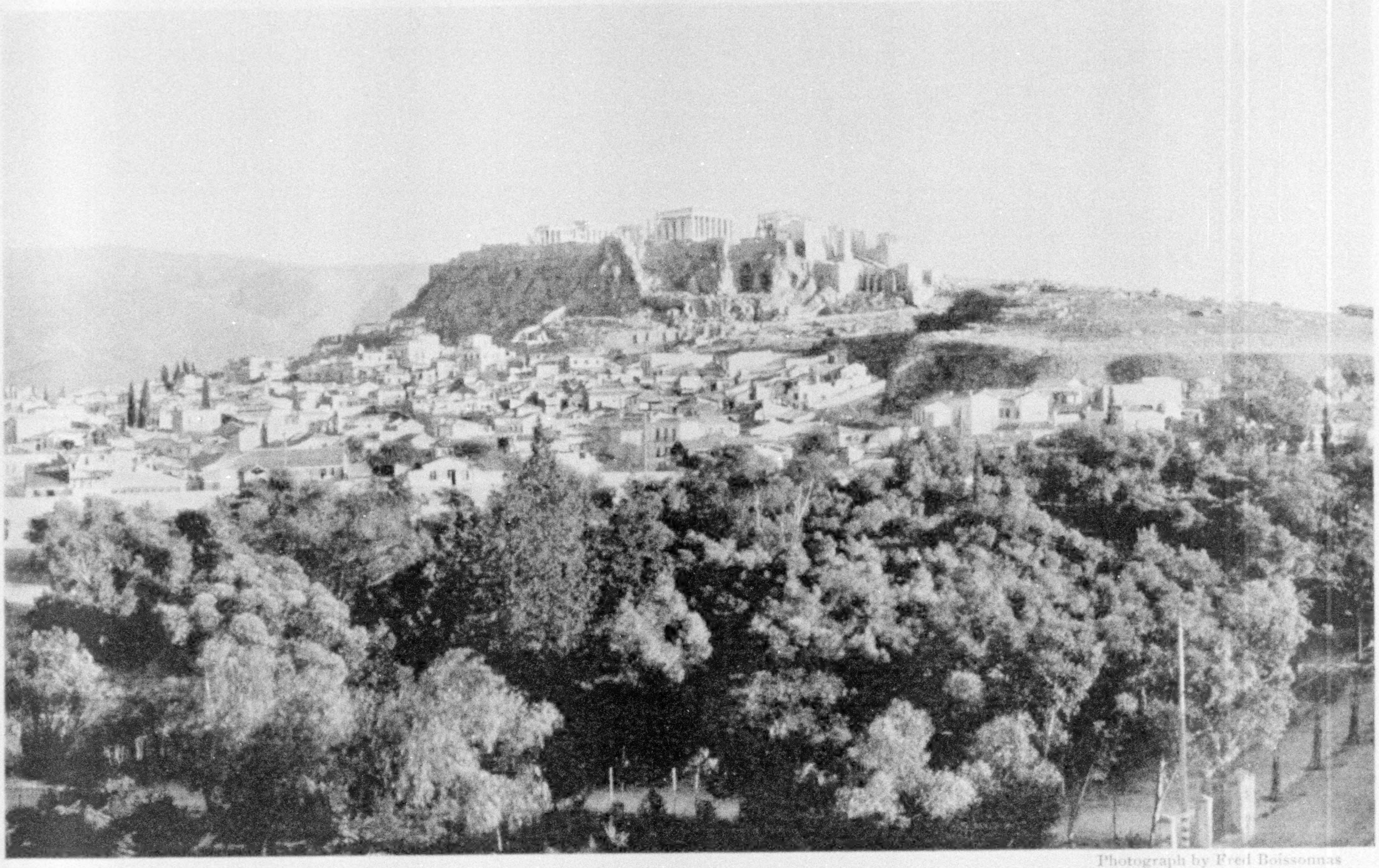
A pleasing tradition which dies hard was that Victory had so constantly perched on the Athenian banner that she had lost her pinions and had come permanently to reside at Athens. However, learned and cruel men have shown that



Photograph by Fred Boissonnas

THE WESTERN PORTICO OF THE PARTHENON

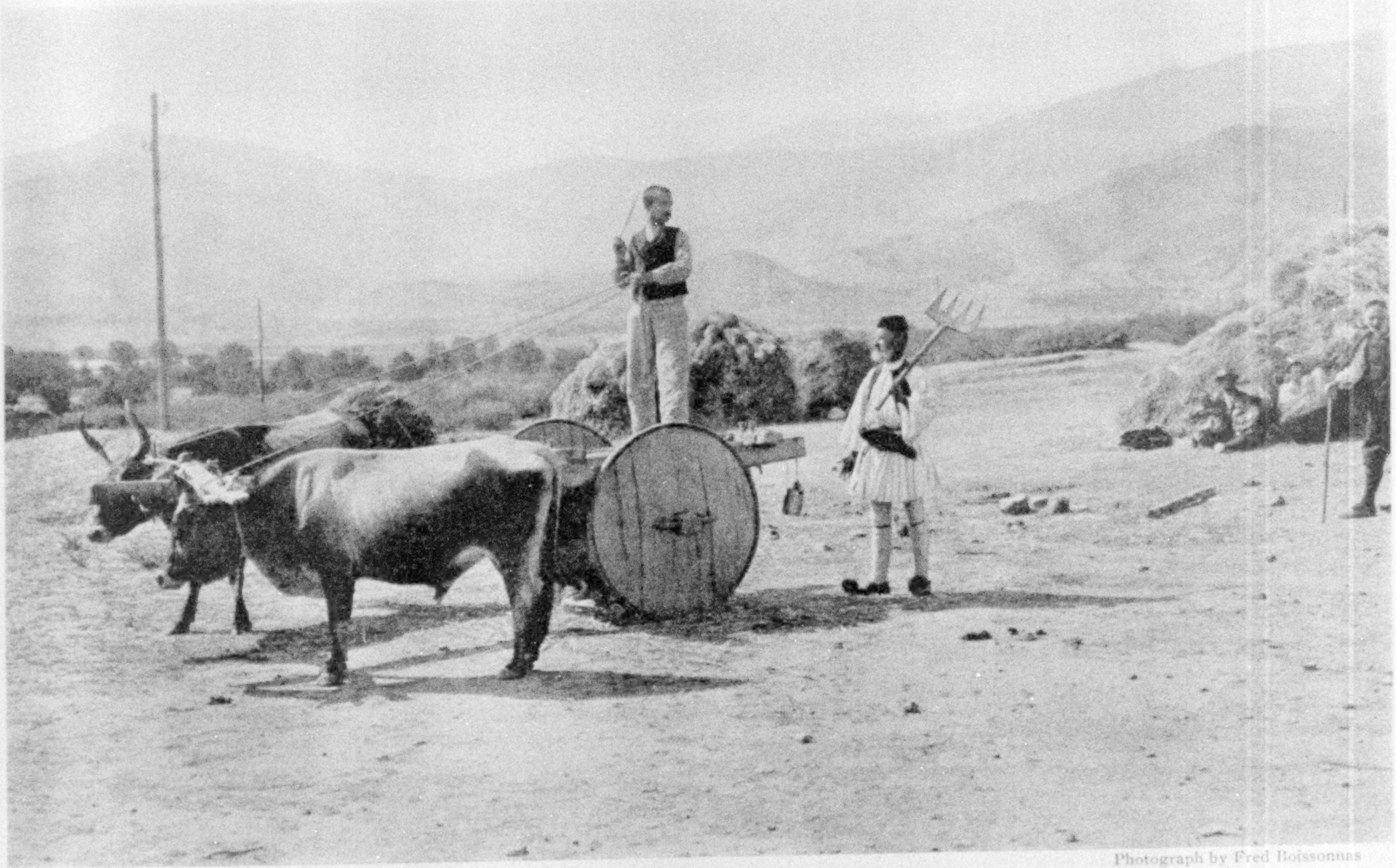
Even in ruins the great temple of Athena Parthenos, crowning the Acropolis, is the chief glory of Greece. It was erected during the rule of Pericles under the direct superintendence of Phidias, greatest of sculptors. Phidias himself made the colossal ivory and gold statue of the divinity which was inclosed within the magnificent shrine and dedicated in 438 B. C.



Photograph by Fred Boissonnas

THE VIEW OF THE ACROPOLIS FROM THE NORTHWEST

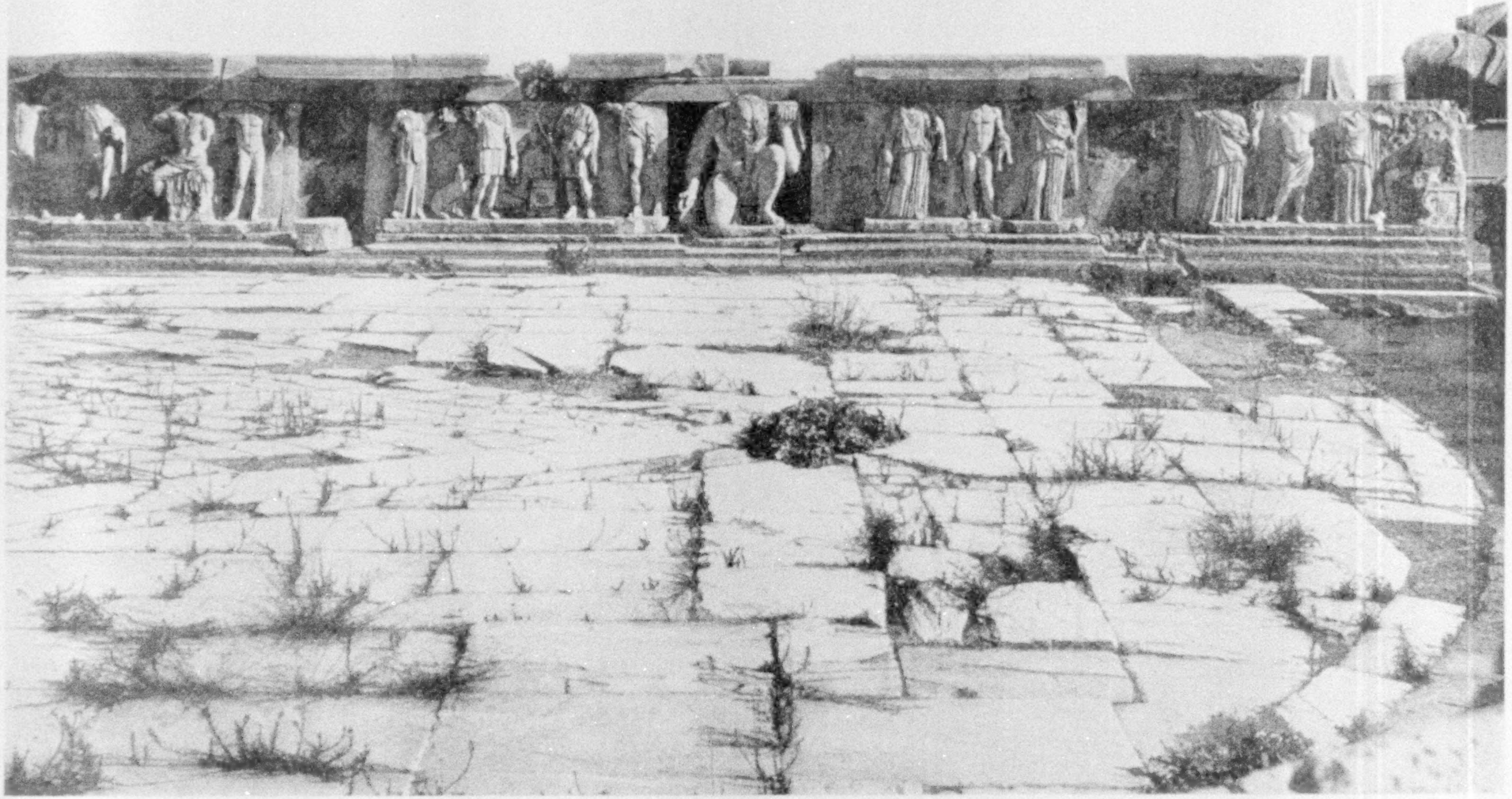
Athens, "the eye of Greece, mother of arts and eloquence," is built around the rock of the Acropolis, which rises to a height of 180 feet above the Plain of Attica and is about 1,100 feet long and 500 feet broad. On it stand the ruins of the Parthenon, the Erechtheum, and the temples of the Wingless Victory and of Artemis.



Photograph by Fred Boissonnas

A THESSALIAN PEASANT WAGON AT THE FOOT OF MOUNT OLYMPUS

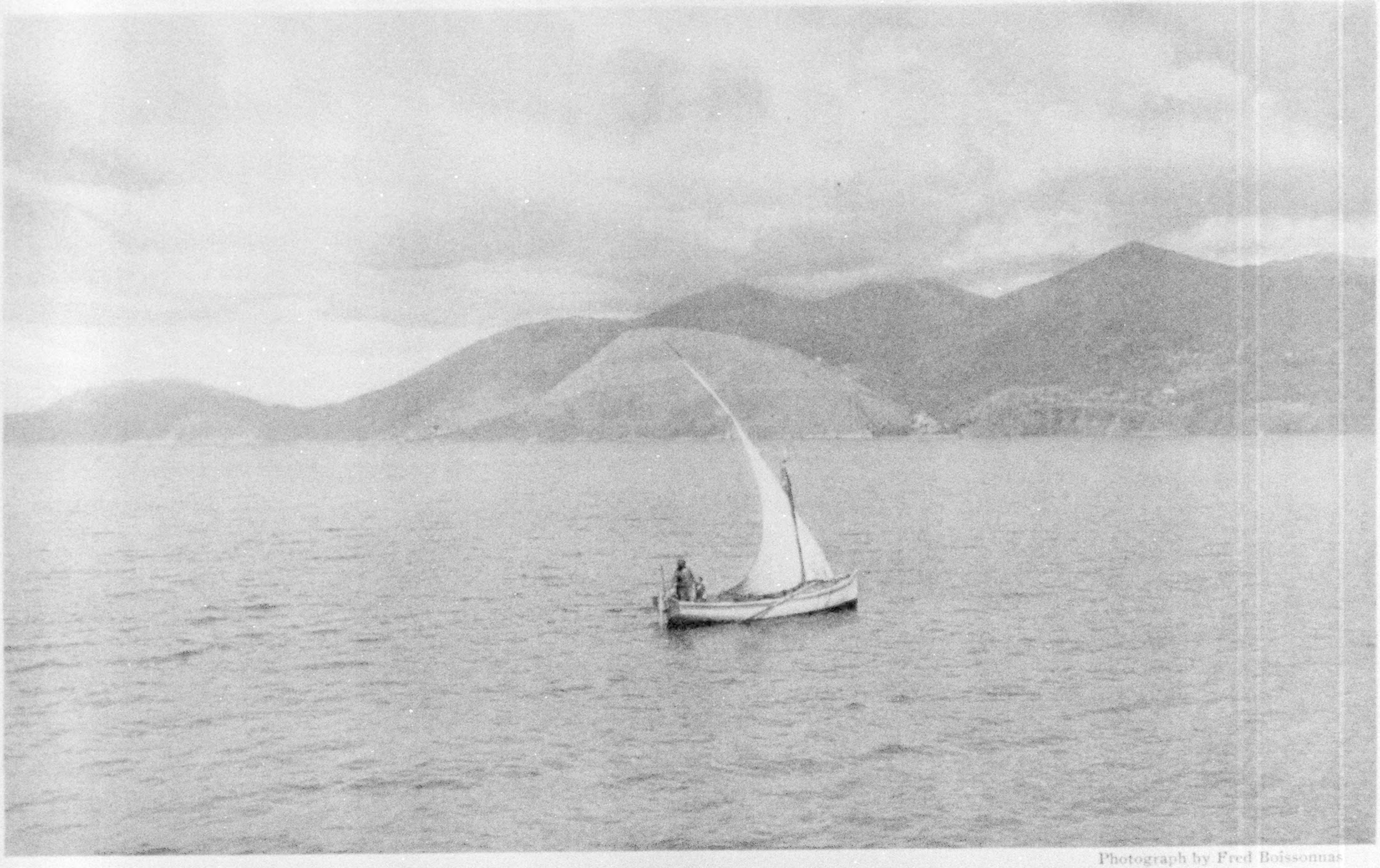
Thessaly is a fertile plain of northern Greece entirely surrounded by mountains, broken only by the Vale of Tempe, which separates Ossa from Olympus. The peasant with the pitchfork is wearing the native costume.



Photograph from Alexander Wilbourne Weddell

A VIEW TOWARD THE STAGE IN THE TEMPLE OF DIONYSUS: ATHENS (SEE PAGE 582)

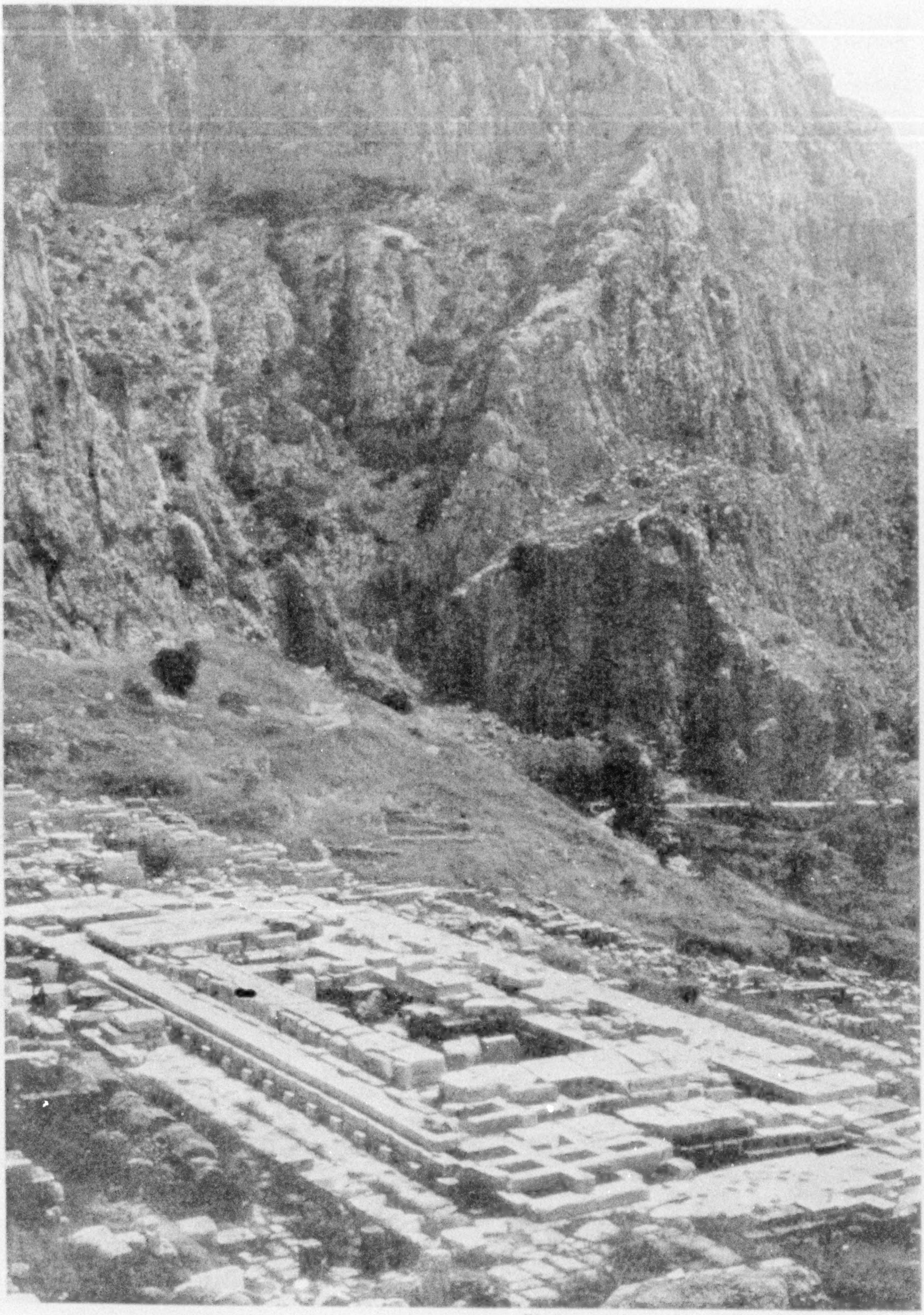
It was not until the time of the Romans that a higher speaking place or stage, in the modern sense of the word, was provided for the actors. They were first distinguished from the chorus by their greater height, gained by wearing a buskin or high shoe, called cothurnus. The reliefs supporting the stage are from the time of Nero. The scenes depicted are from the Dionysiac myth. On the extreme right the sitting figure, badly mutilated, is that of Dionysus. The crouching figure of Silenus belongs to an earlier period.



Photograph by Fred Boissonnas

ON THE WATERS OF THE GULF OF ARGOSTOLI

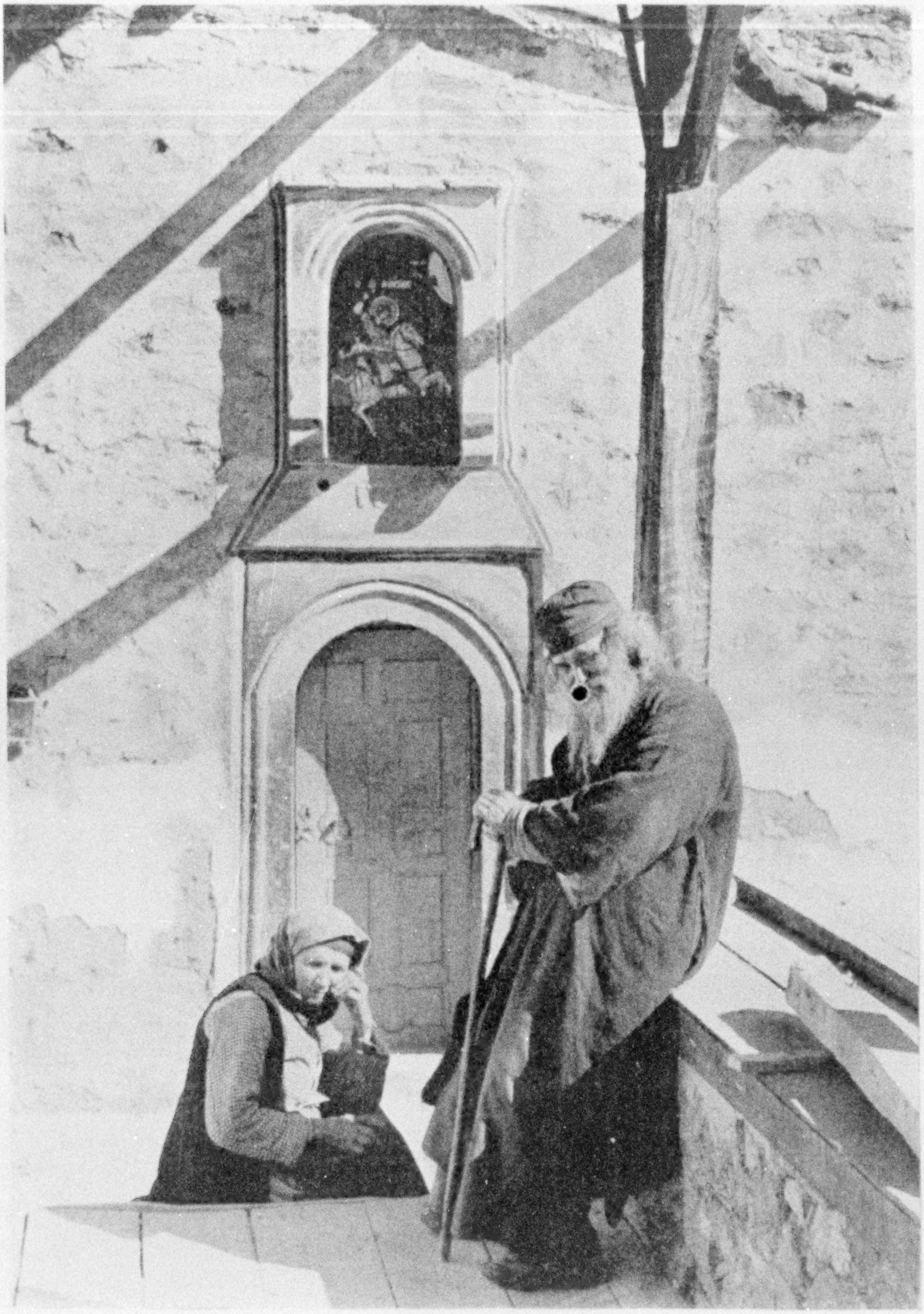
This arm of the sea runs deep into the island of Cephalonia, one of the largest and most fertile of the Ionian Isles. The island is noted for its currants and its inhabitants are among the finest sailors of a seafaring nation.



Photograph from Alexander Wilbourne Weddell

THE RUINS OF THE TEMPLE OF APOLLO AT DELPHI

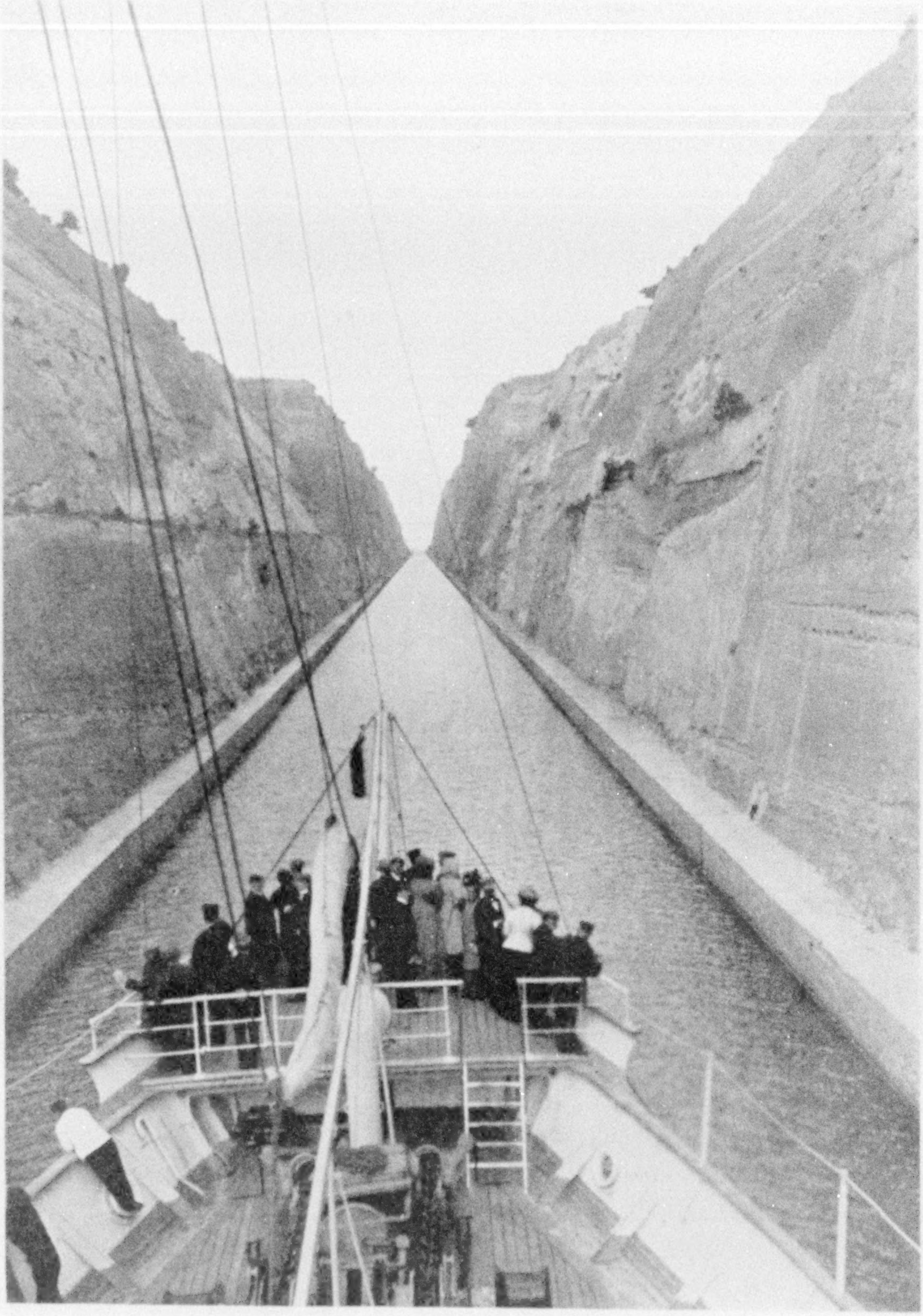
Unlike most pagan structures in Greece, the Temple of Apollo at Delphi would seem never to have been converted into a Christian church. In the vestibule of the ancient temple were carved the famous sayings of the seven sages, "Know thyself" and "Nothing too much." In one corner of the building was the chasm of the Oracle, a cleft in the earth from which a poisonous gas arose (see text, page 630).



Photograph by Fred Boissonnas

A GREEK MONK BEFORE THE CONVENT OF ST. GEORGE: PHENEOS

This convent, at the foot of Mount Krathis, in the Peloponnesus, once stood a mile from its present site, but was forced back by the waters of Lake Pheneos in the 18th century. In ancient times Pheneos was the seat of a temple to Artemis Heurippa, said to have been founded by Ulysses because he discovered his lost horses here. Not far away is the Stymphalian Lake (Saraka), abode of the man-eating birds destroyed by Hercules as his fifth labor.



THE CORINTH CANAL, "A SWORD-CUT IN THE BROWN EARTH SHORTENING THE JOURNEY FROM THE ADRIATIC TO PIRÆUS BY 200 MILES"

Twelve years were required to complete the canal, which is four miles long, 75 feet broad, and 26 feet deep, its construction representing a cost of sixty million francs. It connects the Gulf of Corinth with the Saronic Gulf (see page 623).

the Wingless Victory is really one of the manifestations of Athena.

Near by is the spot from which the aged King Ægeus took his stand to catch the first beam glittering on the sail of the returning ship in which his son Theseus had sailed to Crete to kill the Minotaur.

The rest of this heroic legend is familiar to all—of the beautiful youths and maidens destined to be devoured by the monster; of Theseus, their preserver, who penetrated into the Labyrinth and found his way out by means of a silken thread given him by Ariadne, torn from her allegiance by her love for the handsome stranger; of how it had been agreed between Theseus and his father that on returning to Athens white sails would be hoisted in place of the black ones to indicate his triumph over the monster; of how, in the flush of victory, the young man forgot this, and the old father, seeing the black sails and believing his son to be dead, threw himself headlong from the rock.

The king's name is given to the Ægean Sea, which a poetic fancy would have lapping on the crags at the foot of the promontory.

VICTORY TYING HER SANDALS, A MASTERPIECE IN MARBLE

Around the bastion-like space in former days was a balustrade adorned on the outer side with reliefs in marble representing Victory in various attitudes. Several of these have been preserved, notably the Victory tying her sandal.

This work, dating from the fourth century B. C., at a moment when Greek art was first manifesting a decline from the austere quality of the preceding century, is certainly one of the loveliest fragments that have come down to us from antiquity.

The model was, perhaps, a young Greek girl of about fourteen years of age; the naked body was doubtless drenched with water, and then over it was thrown a filmy garment which molded itself to the fair young form; the artist then endeavored to express the vision in unyielding marble (see illustration, page 581).

In this beautiful work the delicate curves of the body, the soft revealing of the budding bosom under the gossamer-like garment, the softly rounded arm, whose delicacy of form is vaguely suggested by the fold of drapery around it, the eternal and radiant youth which animates the fair figure, all combine to give to it a quality of rarest loveliness and charm.

It was an effort to leave this spot, but one had the feeling that the great moment was yet to come.

IN THE SHADOW OF THE PARTHENON

We walked back a few yards through the upper colonnade of the Propylæa and before us stood the Parthenon in all its overwhelming grandeur and severe beauty.

There are things in this world which we so love or so admire that we are loath to praise them, lest by clumsy or ill-chosen eulogy we should harm or diminish what we are fain to honor. I felt this before the Parthenon.

Standing there, it was a pleasure to recall that this monument, the epitome of classic Greek art, like that example of a later Greek art, St. Sophia at Constantinople, was really a glorification of the Divine Wisdom; for he must be a dull fellow who fails to see some such idea in the lovely myth of Athena springing, full grown, fully panoplied, and with a shout, from the brain of Jove; as for St. Sophia, the name is derived from the Greek, meaning Holy Wisdom.

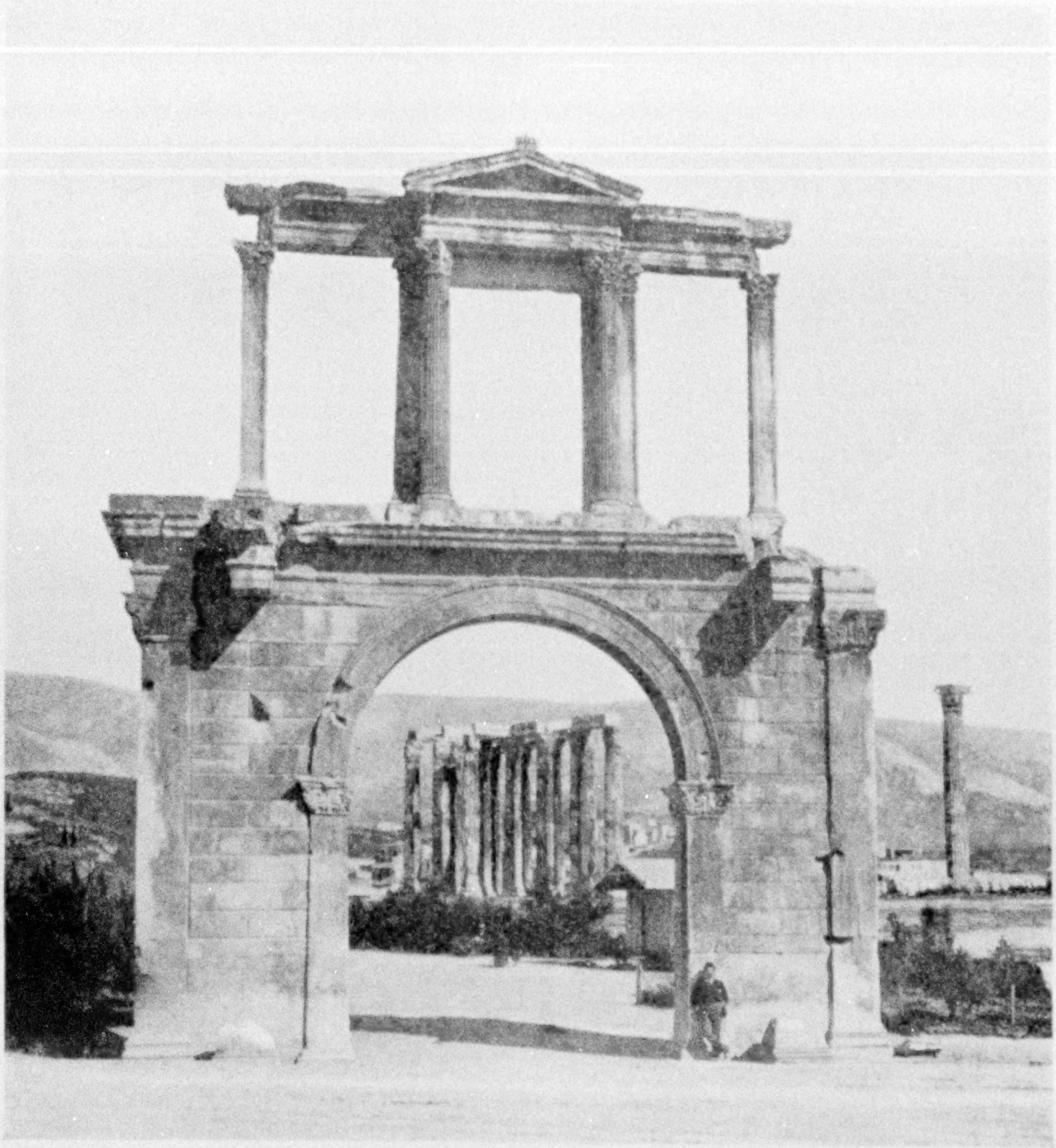
We stepped into the warm sunshine and walked slowly toward the temple. There were poppies blowing around our feet, and from below came familiar city noises, softened by the distance. At several points artists had set up their easels and were making more or less successful attempts to reproduce some of the beauty of the place and hour.

THE VIEW FROM THE PARTHENON

We climbed the steep steps and entered the building, and here were fortunate in meeting an archeological acquaintance who pointed out those things about the building which make a special appeal to the lay mind.

In the Treasure House, at the west end, we were told, had been stored the booty taken at Salamis, which included Xerxes' throne.

In another spot various Christian bishops had slept through long centuries. Just here it was recalled to us that the



Photograph from Alexander Wilbourne Weddell

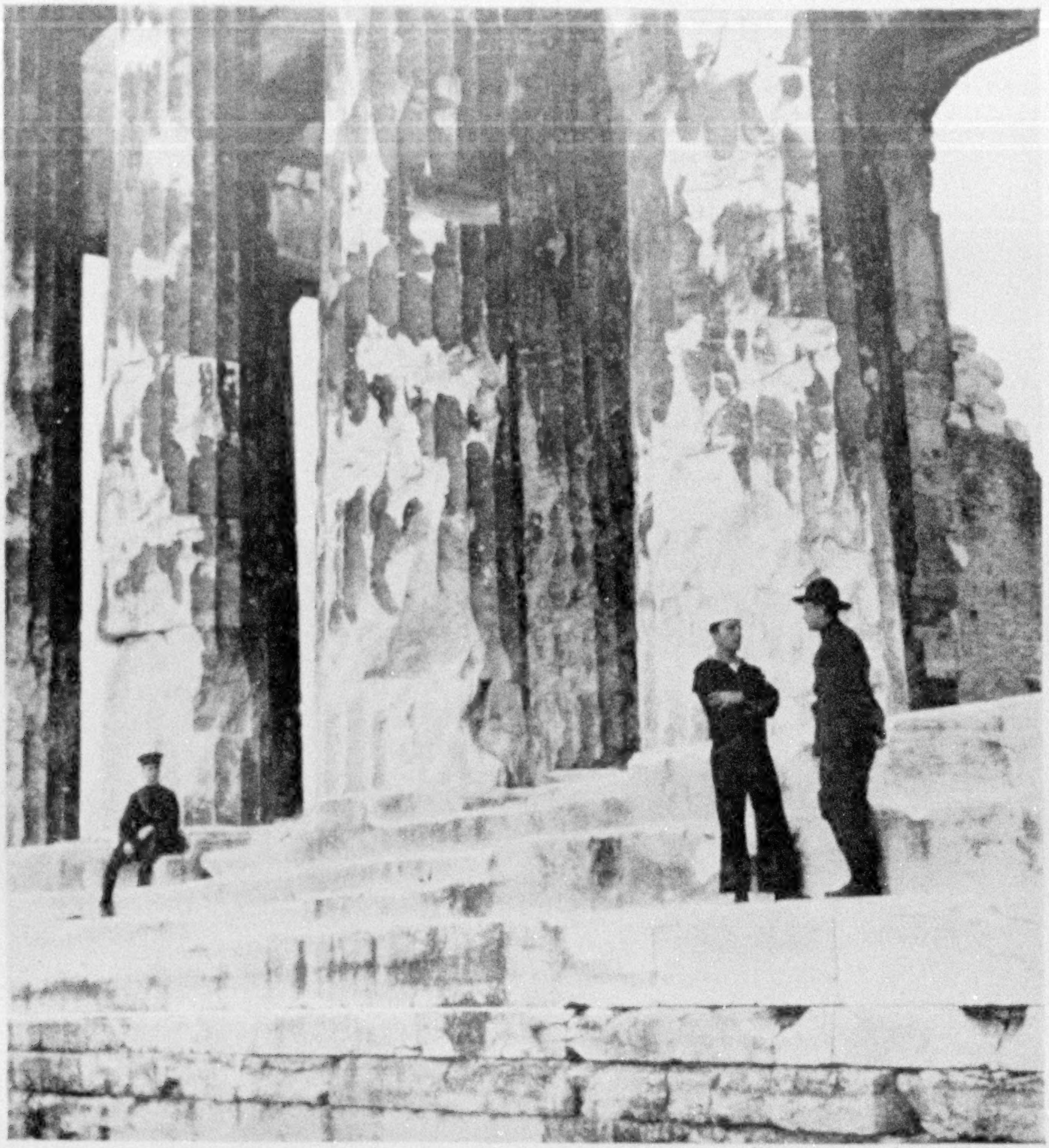
THE ARCH OF HADRIAN

This arch formerly divided the ancient Greek city from the new Athens of Hadrian. The three window-like openings were once filled with thin slabs of marble. Through the archway are seen the ruins of the Temple of Olympian Zeus, which also dates from the time of Hadrian (second century A. D.).

Parthenon really served as a Christian church longer than as a pagan temple, and from it prayers have gone up to Jove, to the Saviour, and to Allah.

The portico commands a superb view of the Saronic Gulf; at every turn names familiar as household words came to our lips—Salamis, the Bay of Eleusis, the dome-like rock of Acrocorinth, Ægina, and in the distance the soft line of hills marking the Peloponnesus.

Our archeological friend, whom I had thought as hardened as a hangman to all about him, was so much moved that he took from his clenched teeth the pipe which seemed to have grown there and, becoming loquacious, observed that in considering Greek structures it should not be forgotten that the *inlook* was as beautiful as the *outlook*—that the Acropolis, Acrocorinth, Sunium are, perhaps, as beautiful to look at as to look from.



Photograph by Lewis W. Hine

A CHANCE MEETING ON THE STEPS OF THE PARTHENON

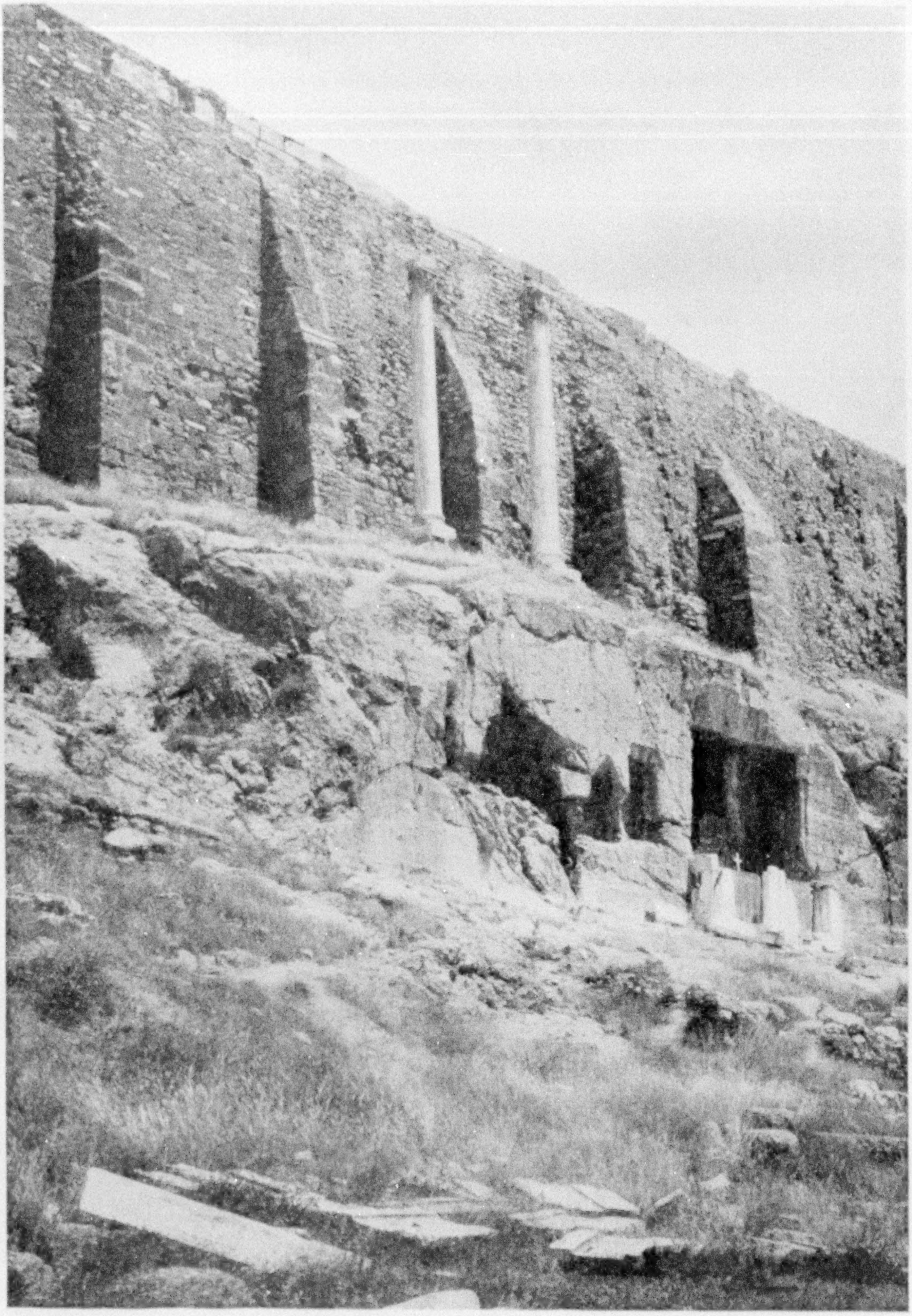
The American sailor and soldier here pictured are both Greeks who spent most of their lives in America before meeting on the Acropolis, in the city of their birth.

"And this," he continued, waxing warm, "is in marked contrast to that later manifestation of genius that we call Gothic. Though there may be exquisite views from the pinnacles yet, how rare is it that your Gothic structure has such a setting as to bring out its true beauty, when seen from afar."

BEFORE THE PORCH OF THE MAIDENS

We finally turned and began looking at the Porch of the Maidens—the Caryatids. These are too familiar to every one to require any description and elaboration, but, as with other Greek sculptures, are admired whole-heartedly. The perfection of the draperies, the radiant youth animating the figures, the dressing of the hair, massed to give added strength to the neck, are a few of the elements of loveliness. Despite the latter device, however, in later times, as will be seen by examining the illustration on page 576, it has been necessary to make a sort of iron frame in which to support the weight of the roof.

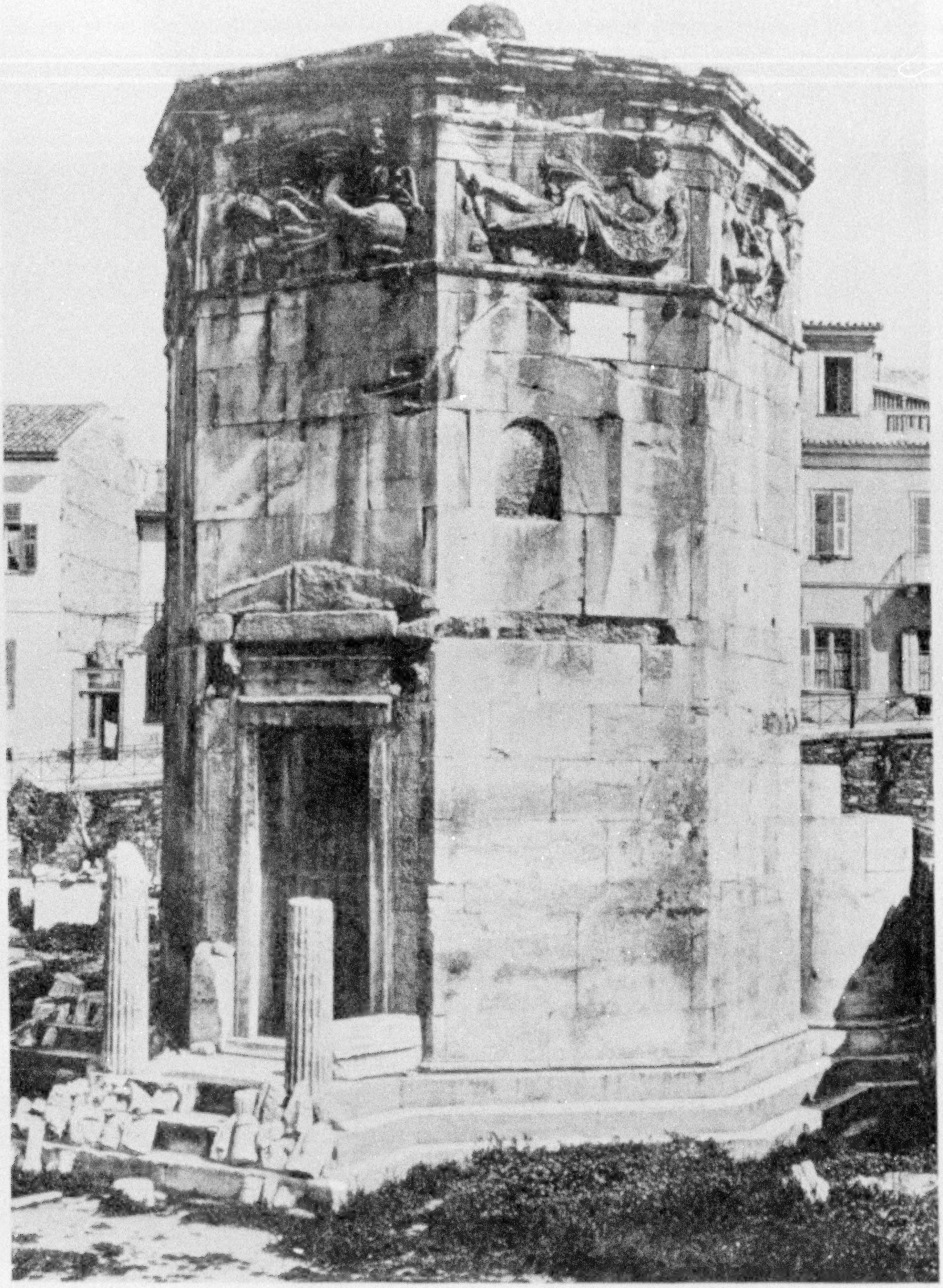
A dozen paces from the Erechtheum,



Photograph from Alexander Wilbourne Weddell

THE MONUMENT OF THRASYLLOS

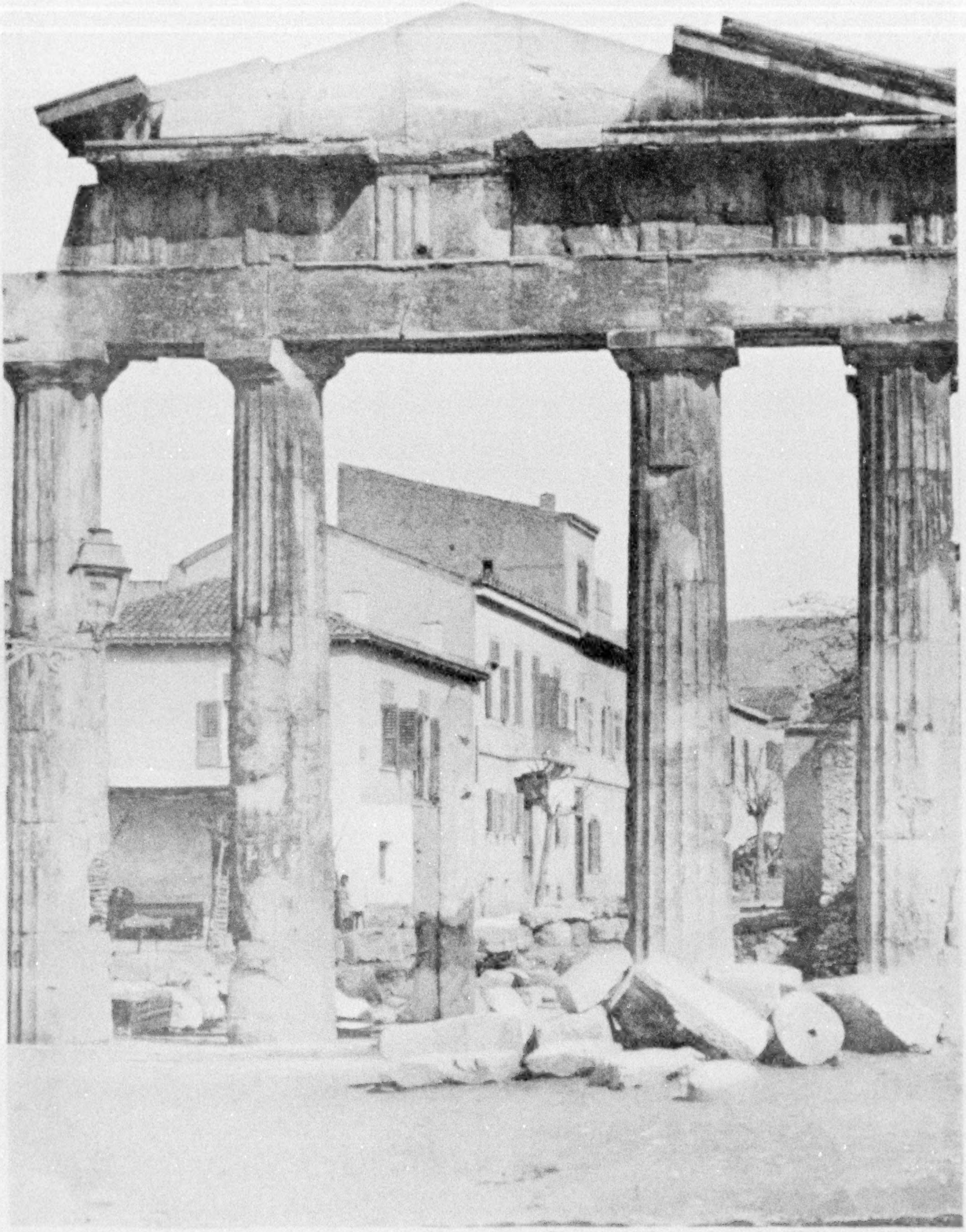
The grotto seen in the foreground is mentioned by Pausanias; it is now a Greek chapel. The monument was destroyed by the Turks when they fired their artillery against the Acropolis in 1827. The two columns above the grotto supported votive tripods, the holes in which they were inserted being still visible at the top. The walls are those built by Cimon, son of the great Miltiades, the victor at Marathon.



Photograph from Alexander Wilbourne Weddell

THE TOWER OF THE WINDS

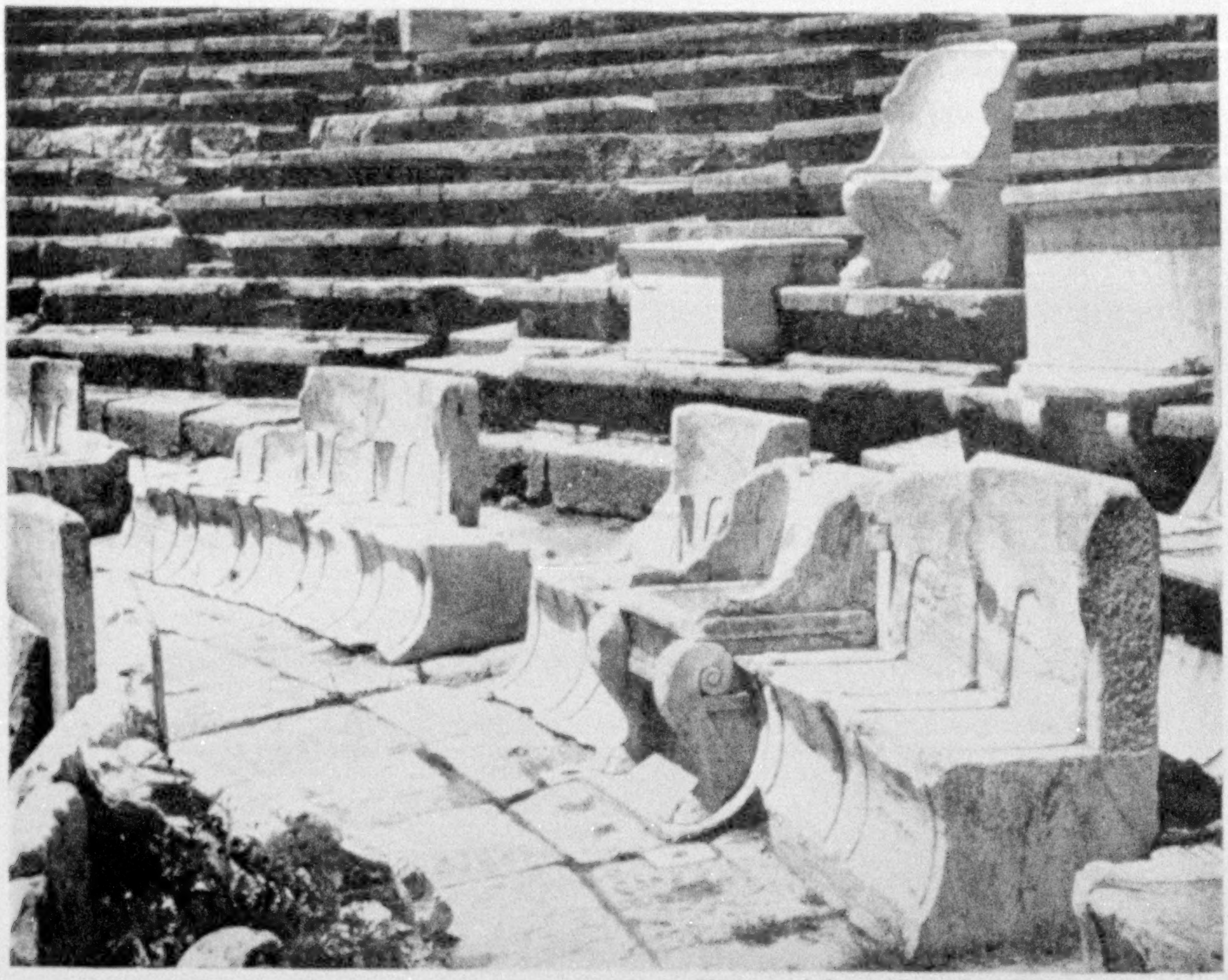
This octagonal structure dates from the first century B. C. Above the doorway is Skiron, with a vase, and immediately to the right is Zephyr, represented as a youth shaking flowers from the folds of his garments. The tower at one time served as the town clock of Athens, for inside was installed an elaborate clepsydra, the water being brought from a spring on the side of the Acropolis.



Photograph from Alexander Wilbourne Weddell

THE MARKET GATE AT ATHENS

This gate was erected by the Athenians about the beginning of our era with funds given by Julius Cæsar and Augustus. Through the arch can be seen a tablet erected in the time of Hadrian, relating to the market prices of salt, oil, etc. One is amazed to think of prices so unvarying that they could be graven in everlasting marble; a second thought is that even under Roman administration the public had to be protected against profiteers! The gateway was formerly crowned by a monument to Lucius Cæsar, who was adopted by Augustus and died in the year two of our era.



Photograph from Alexander Wilbourne Weddell

ROWS OF CHAIRS IN THE THEATER OF DIONYSUS

The theater accommodated about 16,000 spectators. In the foremost row were marble chairs, the one in the center being reserved for the priest of Dionysus. Other chairs bear inscriptions denoting their use by priests or other dignitaries. The two blocks of marble on the third tier of seats probably supported the throne of the Emperor Hadrian. Throughout the theater were statues of the tragic and comic poets, the most prominent being the bronze figures of Æschylus, Sophocles, and Euripides.

whose portico stands to-day in almost untarnished beauty, are the walls built by Themistocles after the destruction of the first temple by the Persians in 480 B. C. In it were used a number of the drums of the ancient columns.

WHERE ST. PAUL PREACHED OF "THE UNKNOWN GOD"

Looking down from these walls, there lay immediately below us a little hill which was pointed out as the Areopagus, or Hill of Mars. Physically, the place has little of interest. There is a short flight of steps cut in the rock, and at the top are the sites of ancient altars (see p. 579).

The ancient Court of the Areopagus, consisting of venerable and eminent Athenian citizens, held its sittings on this hill, and it is usually assumed that it was from here that St. Paul, the future captive of Imperial Rome, in A. D. 54 spoke to Athenian skeptics, with a reference to an altar "To the Unknown God."

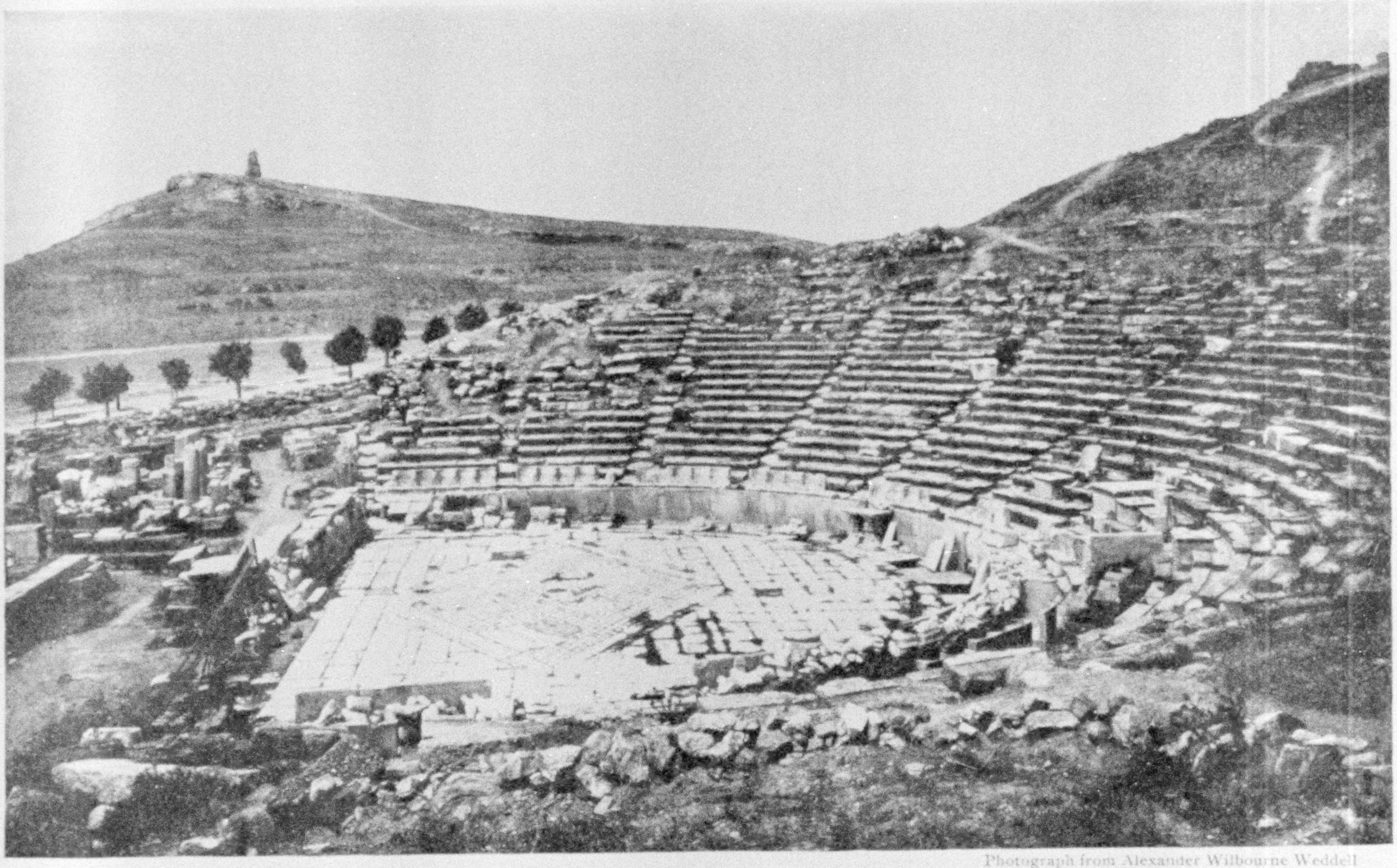
"The flesh warreth against the spirit," whispered my friend in my ear; then, a moment later, "*I'm* going to luncheon." So we retraced our steps at a quickened pace and in a few minutes were back into the 20th century and French cooking.

WHERE PERICLES DELIVERED HIS ORATION ON THE UNKNOWN SOLDIER

Our afternoon was given to the Cemetery of the Cerameicus. The Cerameicus was the name of a suburb lying to the northwest of ancient Athens. This was inhabited, as its name indicates, by the potters (see illustration, page 578).

Visitors to Rome and to Pompeii are

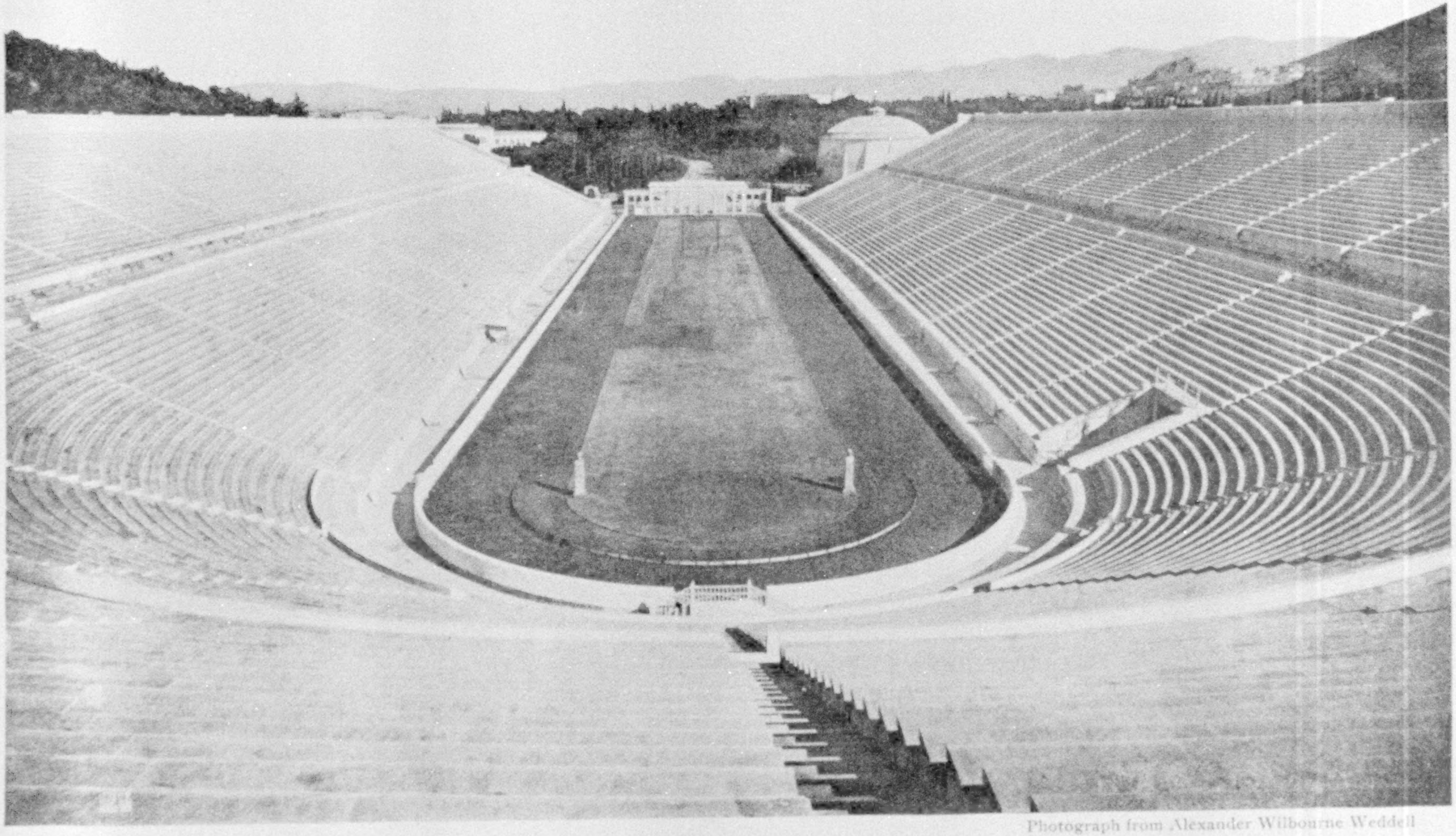
XUM



Photograph from Alexander Wilbourne Weddell

THE THEATER OF DIONYSUS (SEE PAGE 582)

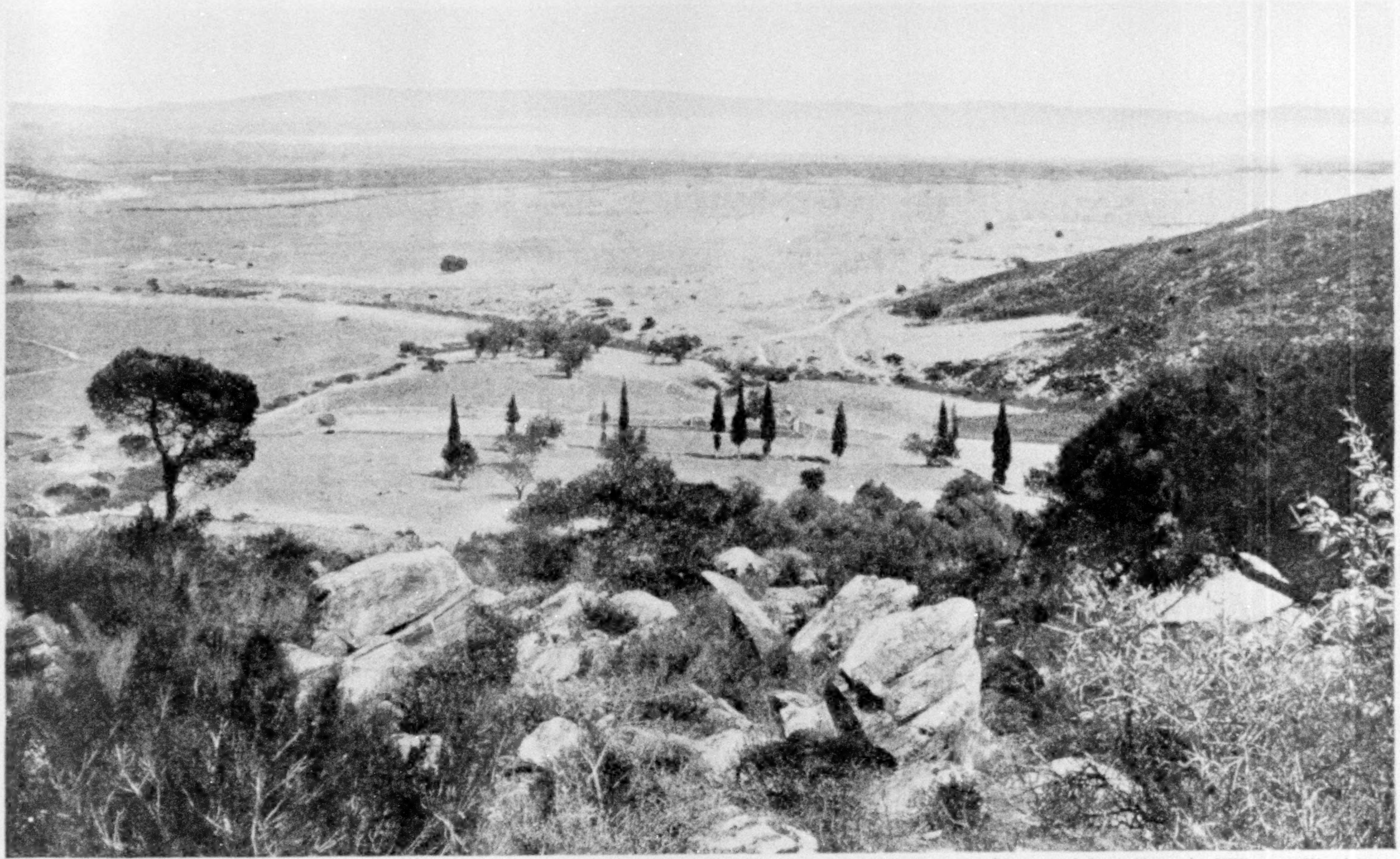
Below the Acropolis lay the temple inclosures of the Wine God. Within this space the masterpieces of Æschylus, Sophocles, Euripides, and Aristophanes were first performed. Many changes have taken place in the original structure and the fragments we now see date, perhaps, from about the third century A. D. On the left, in the distance, is seen the monument of Philopappos, crowning the hill of the same name.



Photograph from Alexander Wilbourne Weddell

AN INSIDE VIEW OF THE STADIUM WHERE THE FIRST OF THE MODERN OLYMPIC GAMES WERE HELD

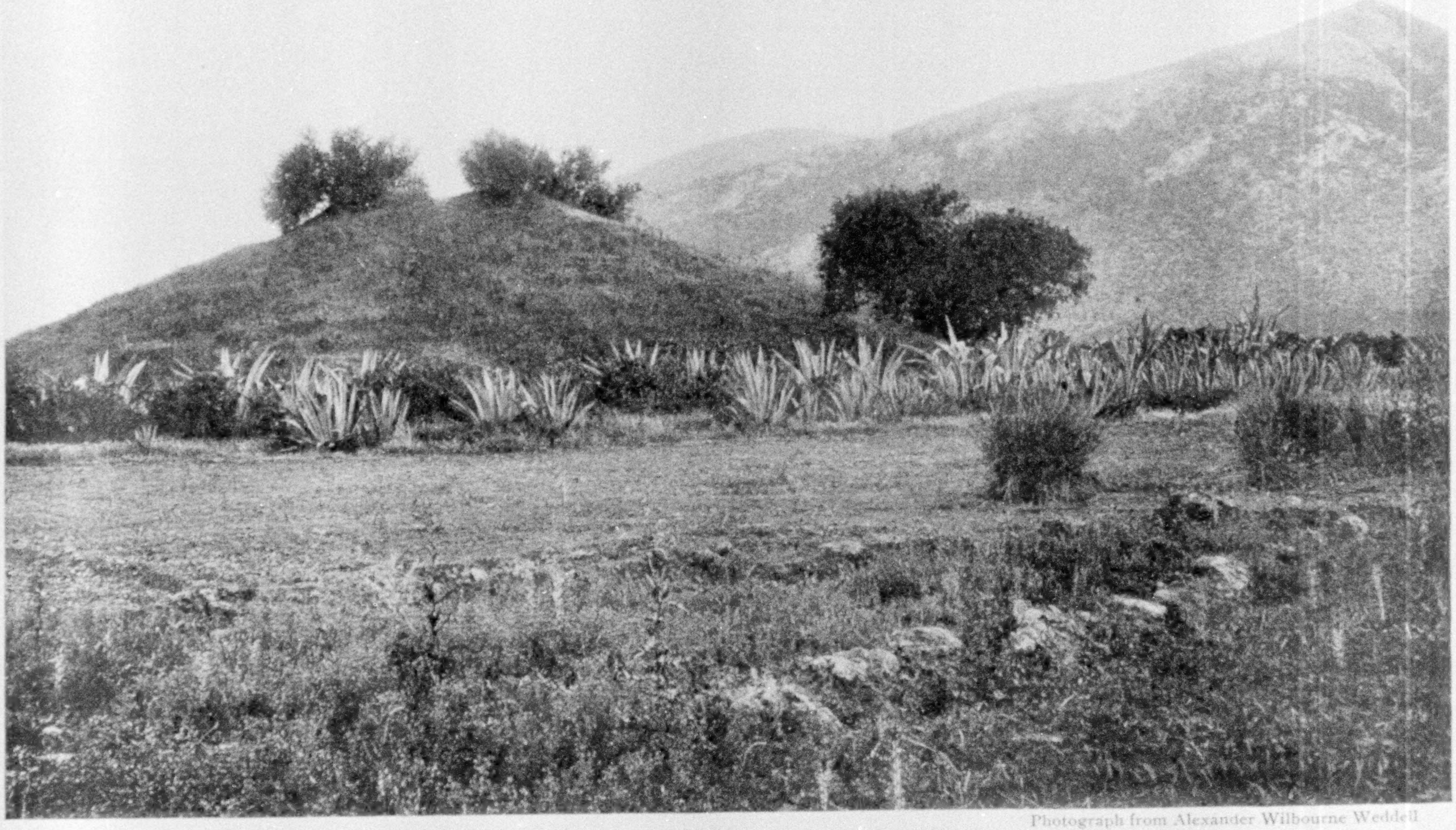
The stadium at Athens is on the site of the original structure where were held the Pan-Athenian games. It was originally laid out by the great Lycurgus, one of the "ten" Attic orators. The present stadium is really merely a resheathing of the old structure in Pentelic marble. A Corinthian propylæum of a temporary nature now forms the entrance. In the background is seen Mount Hymettus. The new work was inaugurated with the Olympic games of 1906 (see text, page 667).



Photograph from Alexander Wilbourne Weddell

THE PLAIN OF MARATHON, SCENE OF THE GREAT CONFLICT BETWEEN EAST AND WEST

The water in the distance is the Gulf of Marathon. Beyond is the island of Eubœa. To the extreme left, and in the soft curve of the shore, the Persian galleys were drawn up. Down the valley, from near where we stand, swept the Greeks. Toward the right, and at a short distance from the shore, rises the Mound under which lie buried the Athenians who fell in the battle. The cypress trees in the foreground are a characteristic feature of Greek landscapes (see page 607).



Photograph from Alexander Wilbourne Weddell

THE MOUND OF MARATHON

This pile of earth, 40 feet high, probably marks the spot where the struggle between the Greeks and the Persians was hottest (see text, page 607). Herodotus was the first to write an account of the battle, some 40 years after the event, and he records the interesting fact that the Athenians were the first of the Greeks to introduce the custom of engaging the enemy at a run.

familiar with the custom obtaining in ancient days of burying the dead immediately outside the town gates and by the side of the highroad. The Cerameicus is really a street of tombs and it is the only ancient cemetery now extant in Greece.

It will be recalled that it was here that Pericles delivered his famous oration over those Athenians who were killed in the first year of the Peloponnesian War. His ringing phrases come down to us through the ages with that freshness and beauty and strength which seem to characterize all that was best and greatest in ancient Greece.

Lowell says in one of his essays that he was the last of the great readers. I think most of us are haunted by regrets over the books we can never read or reread, but I know of nothing that will more richly repay the reader than that chapter of Thucydides in which he sets forth Pericles' words to the bereaved families gathered around him in this spot. In it he draws a comparison between Sparta and Athens which, with a fine prevision, seems intended to describe the France and Germany of our time.

Among the Greeks special honor was done to the memory of a soldier when his body was allowed to lie where he fell. To those of lesser glory was reserved sepulture at home, amid familiar sounds and scenes. It is difficult to write what has been said above without recalling the lines of the soldier-poet, Rupert Brooke, whose body lies buried on the little Greek island of Skyros—a piece of ground "that is forever England."

There are few more touching things than some of the old-time memorials still standing in this cemetery. Among these are steles erected at the public cost to two ambassadors of Corcyra who died at Athens in the fourth century B. C.

Some of the family groups are of a simple, homely character; in one of these is sculptured a mastiff; near by, and perhaps the most beautiful of all, is a patrician lady at her toilet, taking from a casket held by a female slave some article of personal adornment (see page 577). Exquisite pitchers in marble, of the shape in which water was brought for the marriage bath, marked the grave of Athenian maidens "untimely lost."

From the cemetery in ancient days led a long road to the garden called the Academy; it owes its name to the hero Academus. Here Plato loved to wander.

There is a ridiculous little railway linking Athens with a small country town to the north called Kephisia, famous from classic times for its gushing streams and fountains and for its coolness, even in the midst of an Attic summer. The railway, which was committed in recent years by a Greek company, wanders along in an irregular fashion for some miles; one of the stations between Athens and Kephisia is a point of departure for the climb to the summit of Mount Pentelikon, from which there is a view of the entire Attic plain as well as the field of Marathon.

Leaving the railway at this station, our path led us by a gentle incline through olive groves and patches of pine forest to the very foot of the mountain.

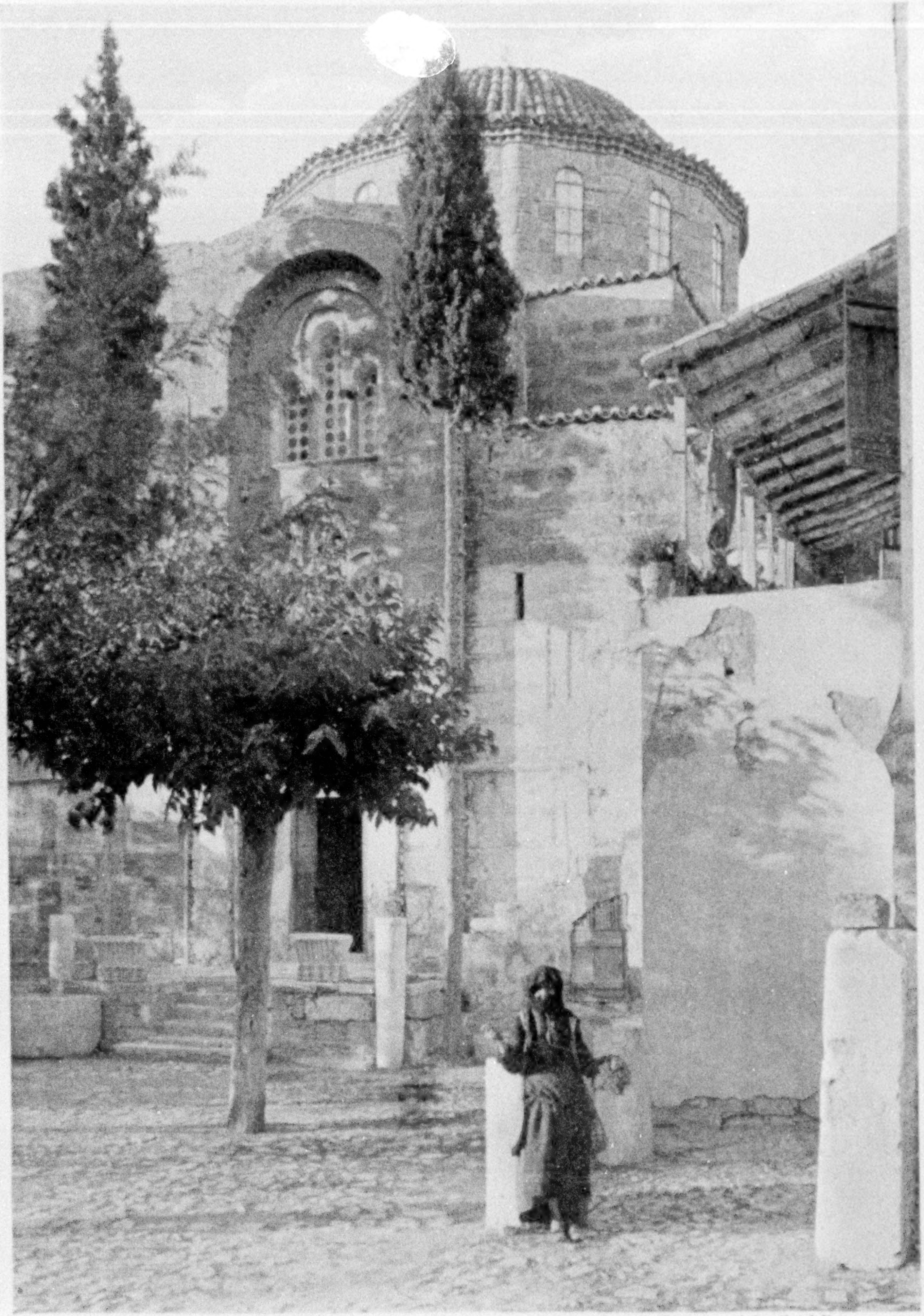
WHERE "THE MOUNTAINS LOOK ON MARATHON"

Here for perhaps a half hour we climbed slowly over an ancient causeway leading to one of the quarries whence in ancient days marble had been taken for the building of Athens. At several points we saw huge drums of marble, ready to be let down the causeway, where they had been left by workmen who "downed tools" more than twenty centuries ago.

As we went higher, the plain revealed itself in all its loveliness. The Saronic Gulf glittered like a silver shield under the warm sun; Salamis, Ægina, Poros, and Hydra seemed but a little distance away; to the north the symmetrical form of the mountains of Eubœa swam into view. A short, rough scramble up a barren slope and we were at the top.

"The mountains look on Marathon and Marathon looks on the sea," sings Byron in one of his most deeply inspired chants. We have our first glimpse of the plain from this summit, 4,000 feet above the blue waters of the Eubœan Sea.

In the far distance the soft outlines of the hills of Eubœa are silhouetted against the azure sky. From the valley there mounted to our ears the "mellow lin-lan-lone of far-off bells"; in our nostrils was the scent of wild thyme. Immediately below were other ancient quarries from

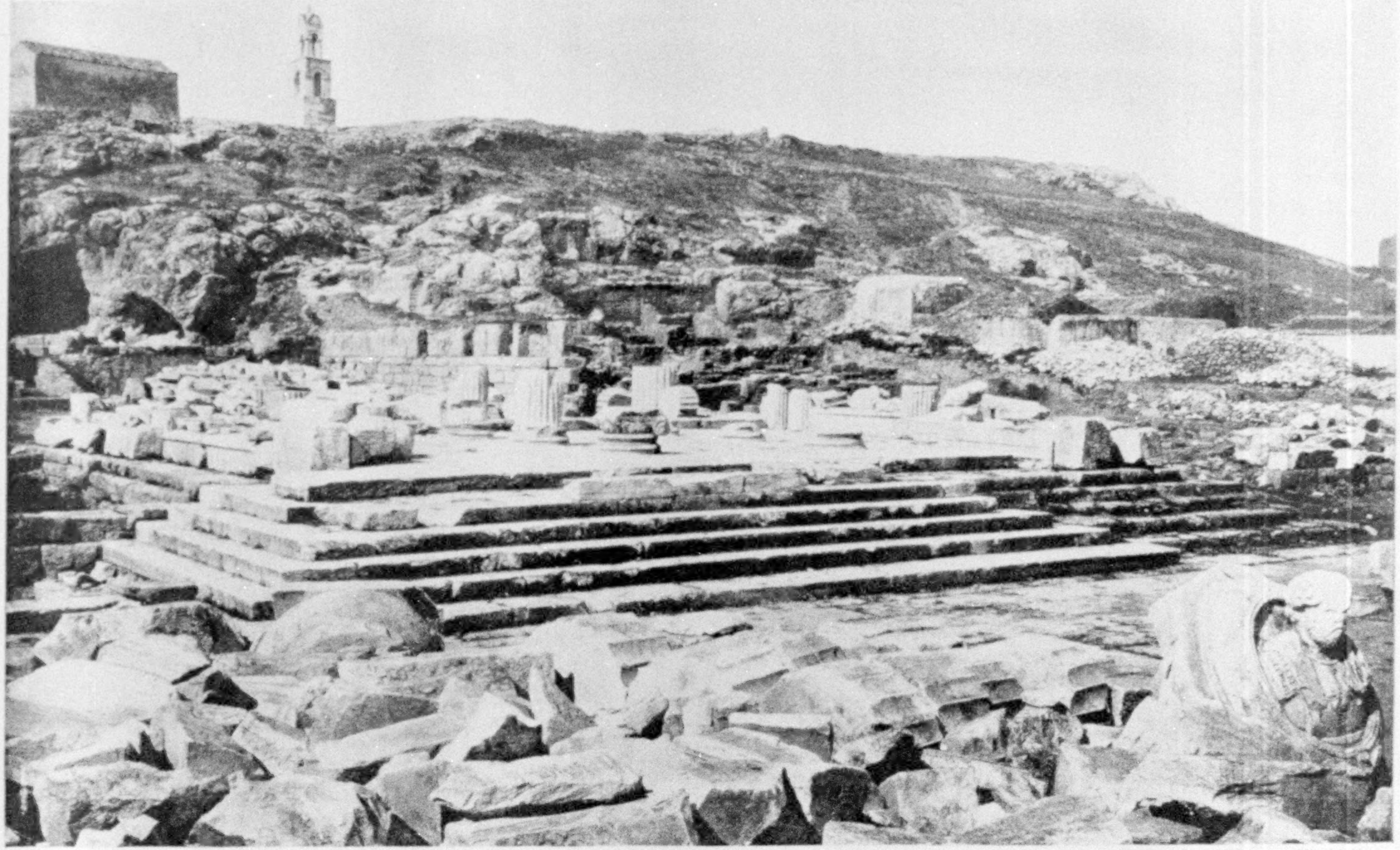


Photograph by Fred Boissonnas

THE CONVENT OF DAPHNE ON THE SACRED WAY (SEE PAGE 617)

Near the pass in the low hill that lies between Athens and the blue bay of Eleusis to the northwest is this old convent, eight centuries old and fallen into decay, which links the architecture of Byzantium with the Attic environment. Inside are some fine old Byzantine mosaics and from the altar screen hang votive offerings from those who have found relief from their afflictions.

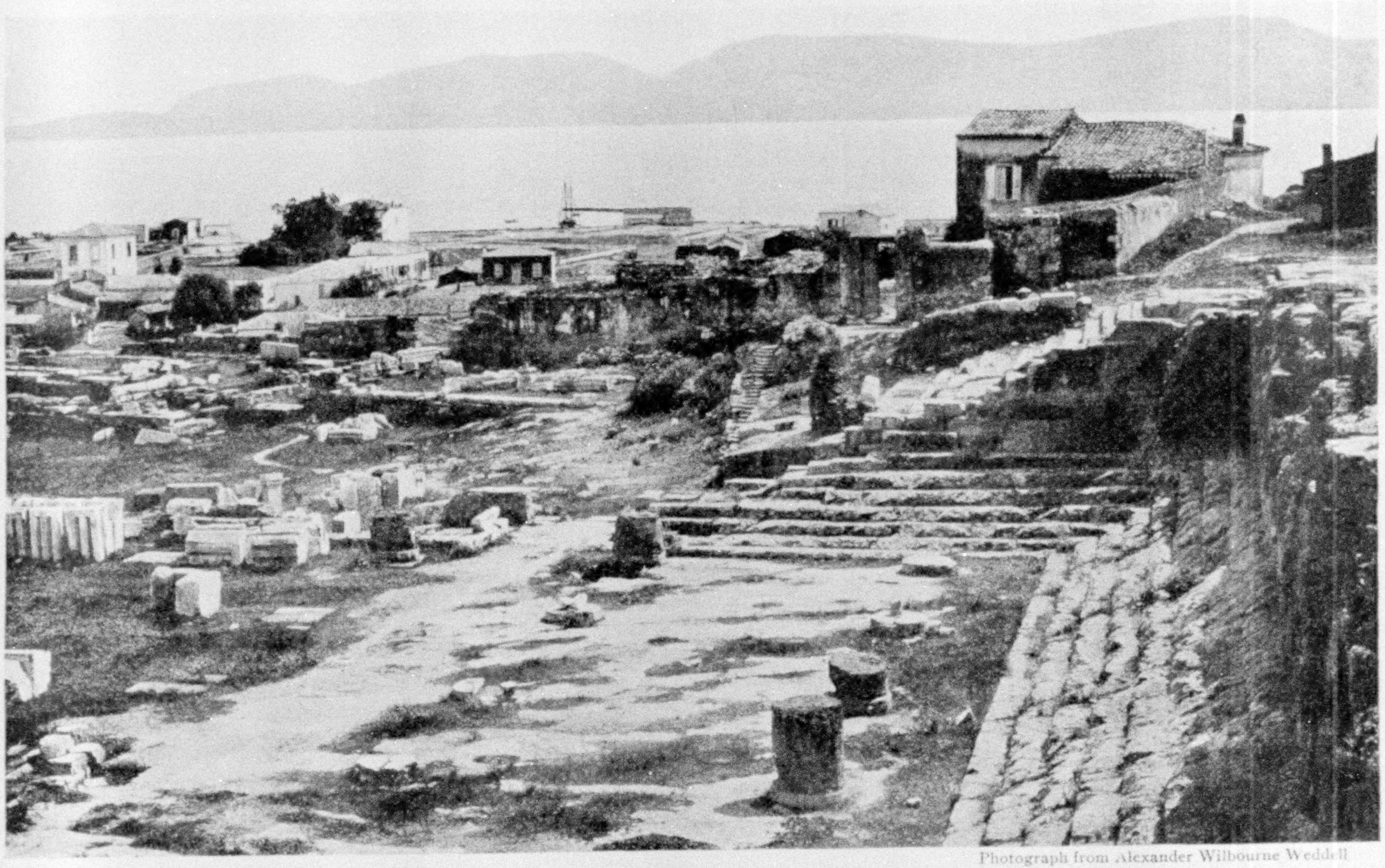
XUM



Photograph from Alexander Wilbourne Weddell

RUINS OF THE GATEWAY TO THE SACRED PRECINCTS AT ELEUSIS (SEE PAGE 618)

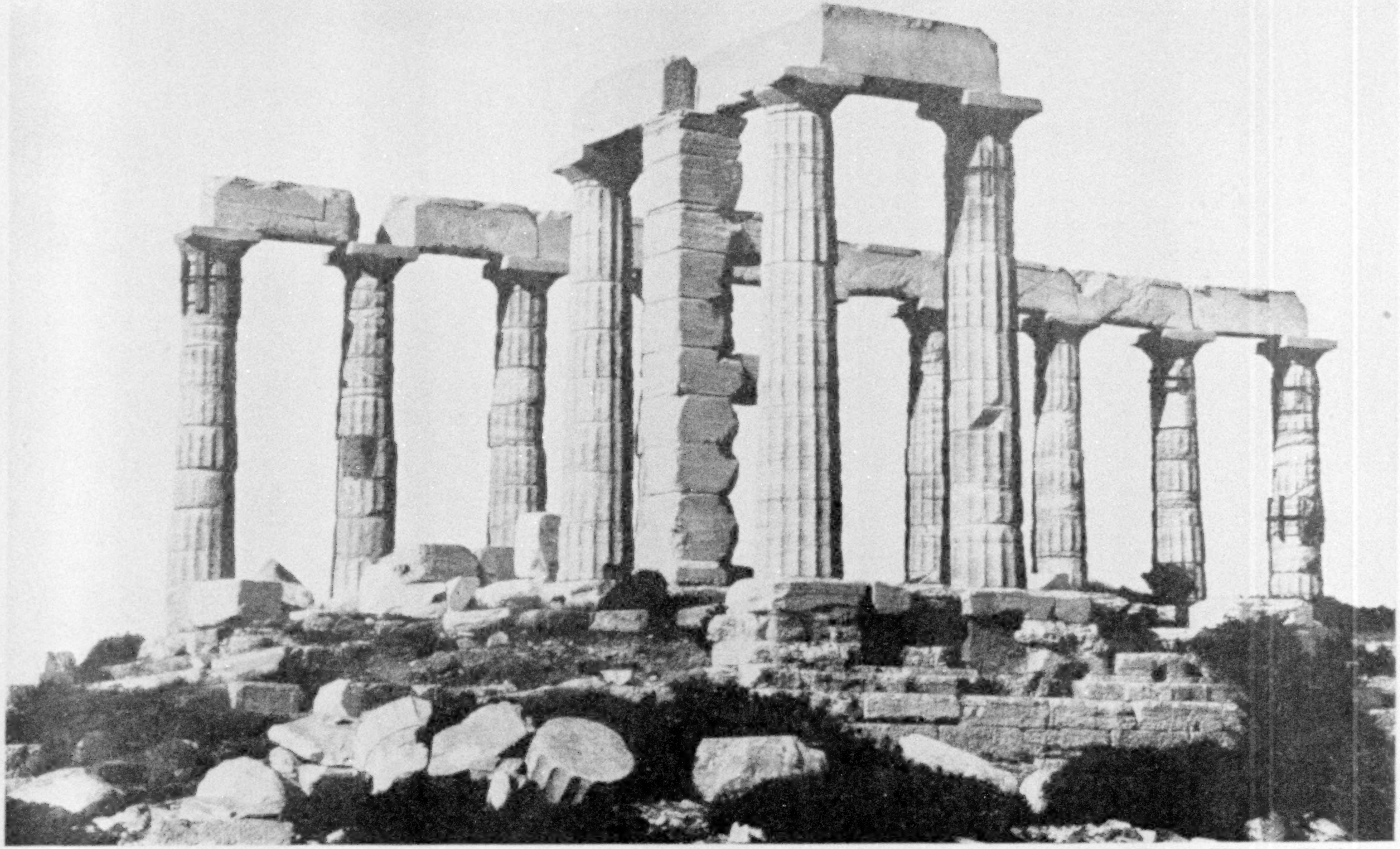
The fragments that we see are doubtless those of the gateway erected by Hadrian. The Goths, under Alaric, were probably the destroyers.



Photograph from Alexander Wilbourne Weddell

THE TEMPLE OF DEMETER AT ELEUSIS, WITH THE ISLAND OF SALAMIS IN THE BACKGROUND

In the near-by plain man, according to Greek tradition, first practiced the art of husbandry under the tutelage of the goddess (see text, page 617). Only the initiated were allowed to take part in these solemn mysteries. A conspicuous feature of the festival was the solemn torchlight procession that left Athens and passed along the Sacred Way. The temple stood until the close of the fourth century A. D., when it was destroyed by the Goths.



Photograph from Alexander Wilbourne Weddell

THE TEMPLE OF POSEIDON AT SUNIUM

Sunium is the name of a rocky headland rising 200 feet above the sea, some fifty miles from Athens. From the earliest times the place was considered sacred. The ruins are those of a temple built about the fifth century B. C. On one of the columns Byron carved his name (see text, page 620).

which in former days the dazzling marble had been hewn to be carried to Athens, there to grow into forms of beauty under the chisel of a Phidias or a Praxiteles.

The scramble down the hillside was an hour's labor and it was another two hours before we reached the Mound of Marathon, raised over the graves of those Athenians who were slain in the conflict.

ON THE FIELD OF MARATHON

The Mound rises perhaps 50 feet above the surrounding plain and is crowned by low bushes (see page 601). Its slopes are covered with grass, while encircling it is an irregular hedge of cacti. From the top there is a view of the entire plain.

One is tempted to smile at the handful of men engaged and the small space covered, yet it is a sobering thing to let one's imagination dwell on what would have happened to the world had the barbarians triumphed in this conflict.

I am sometimes tempted to sympathize with an acquaintance who bewailed the defeat of Montcalm at Quebec and Napoleon at Waterloo. But here, under the Grecian sky, greater issues were involved. It was the first Titanic struggle between East and West, and had the result been different, our religion, our speech, our laws, the very framework of the society which, with all its defects, we hold dear, would have been radically changed, and who would dare say for the better?

THE TRAGIC INCIDENT THAT ENDED GREEK BRIGANDAGE

In the early 70's the road from Athens to Marathon was the scene of a horrible tragedy, when Greek brigands attacked a party of excursionists from Athens, most of them connected with various foreign legations in Greece, and held them for ransom. The women and children of the party were released, and one of the men, Lord Muncaster, who died only about two years ago, was dispatched to Athens to raise the sum demanded.

After Lord Muncaster's arrival at the capital, and following the acceptance of the terms laid down by the brigands, the latter changed these and insisted on more favorable conditions. In these circumstances Lord Muncaster, after consulting with his Minister and other friends, felt that he was not in honor bound to give himself up again. He accordingly remained in Athens.

Meanwhile, negotiations were being carried on with the banditti. Unfortunately, at the same time Greek troops attempted to surround the brigands. The latter fled and, being hard pressed, cut the throats of all their prisoners.

The scandal had now become international, and various powers made vigorous representations to the Greek Government. Finally a number of the criminals were captured and executed and others given long terms of imprisonment. This shocking case may be said to have marked the end of brigandage in Greece.

THE MODERN STADIUM ON AN ANCIENT SITE

The route covered by the Runner at Marathon, in his mad flight to bring the good news of victory to Athens, lay between Mounts Pentelikon and Hymettus and was about 24 miles long. In 1906 approximately the same distance was covered by the runner in the Olympic contest of that year.

This messenger of ancient days doubtless finished his course in the Marketplace, falling lifeless there, as he uttered the simple phrase, "We have won"; the goal of the modern athlete was the magnificent stadium which now covers the site of the ancient structure (see page 599).

As is the case with other stadia, and particularly all Greek theaters, the stadium at Athens, under the plans of the great Lycurgus, was made by cutting into the hillside. While this involved the removal of great quantities of earth, it solved in some measure the problem of walls. The acoustics were in many instances of extraordinary quality.

Athens owes the stadium of to-day to the generosity of a wealthy Greek of Alexandria; it really represents a resheathing of the old structure, and this marble covering is from the same veins as those from which the material for the classic monuments in Athens was hewn.

The stadium is in the form of an ellipse. Near the center, on the right, are seats for the members of the royal family, government authorities, and foreign representatives. At the end of the ellipse are places for the judges. Near by are set up two ancient Hermæ found in excavating.

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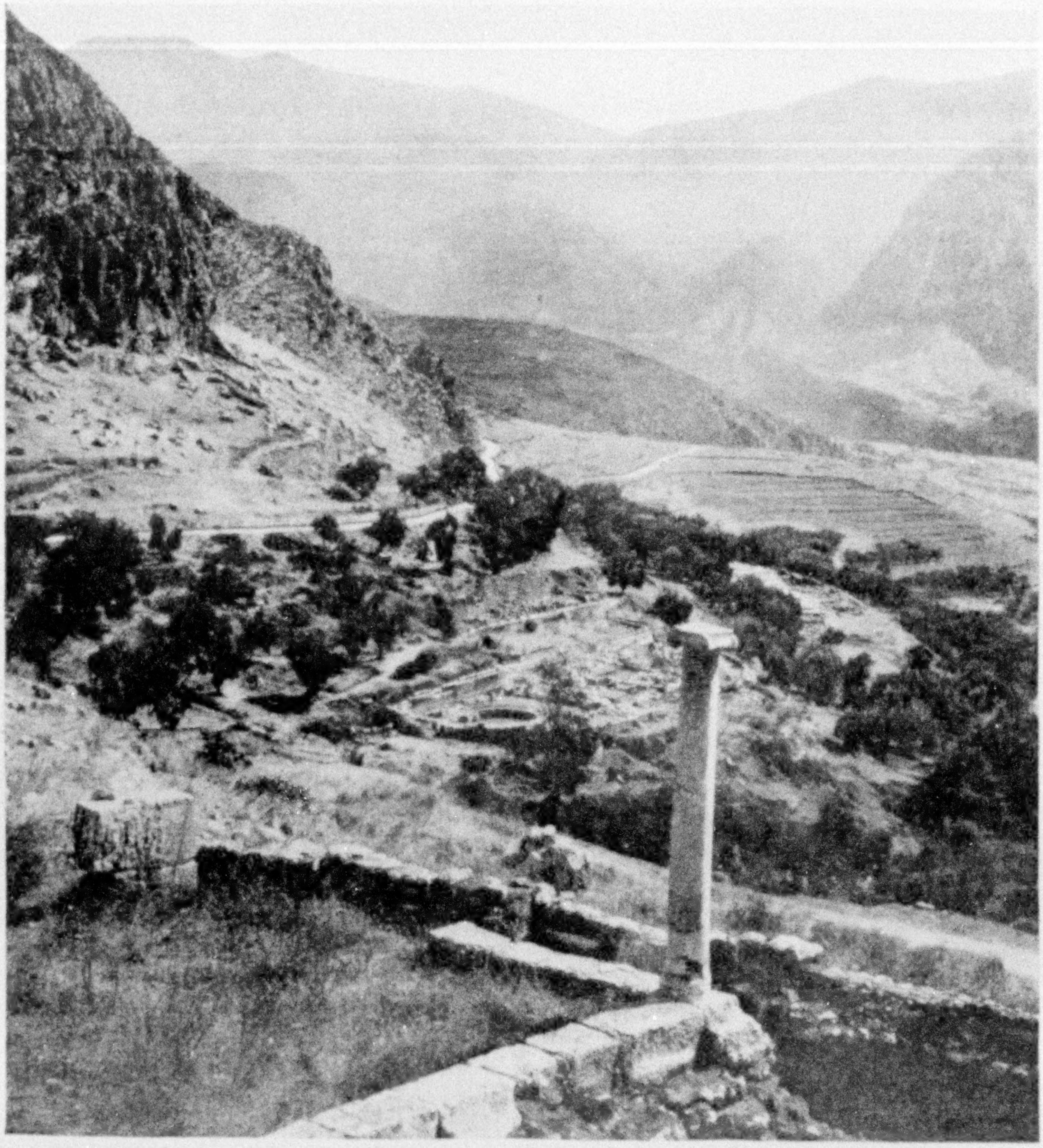


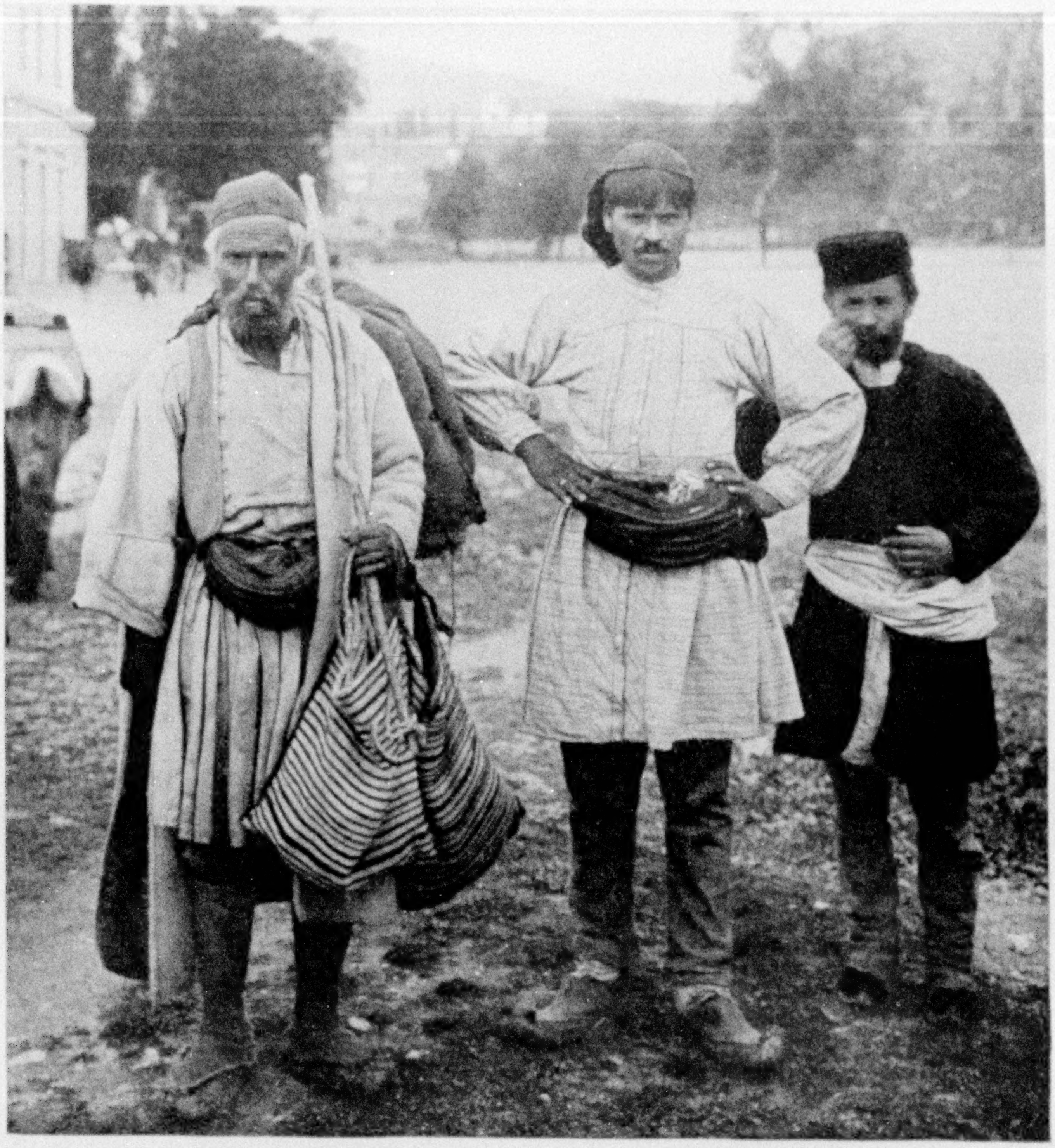
Photograph from Alexander Wilbourne Weddell

THE GYMNASIUM FROM THE TEMPLE OF APOLLO AT DELPHI

Delphi was the center of the cult of Apollo. The grandeur of the scenery, the ice-cold springs, the mysterious air currents from the gorges, from earliest times filled the passer-by with awe. In ancient days the speech of the Oracle had far-reaching effects, and the cult of the god did not cease until the close of the fourth century of our era, when the Byzantine Emperor Theodoric put an end to it by the sword. We are looking down from the temple of the god to the Gymnasium, set in the midst of olive trees. The bathing pool is plainly visible.

About 60,000 people can be accommodated in entire comfort in the inclosure. However, there is but one exit—through the open portion of the ellipse—in which respect it differs from our "bowls" and stadia. But what is lost in the Athenian stadium from the practical standpoint is more than compensated for by the gain in beauty through the absence of the disfiguring passages seen in the modern American structures.

In the reign of Hadrian wild-beast hunts took place frequently in the stadium, and it is thought that the rock-like tunnel on the left-hand side, opposite the entrance, was used to introduce the animals into the arena. In 1906 the athletes made use of this tunnel.



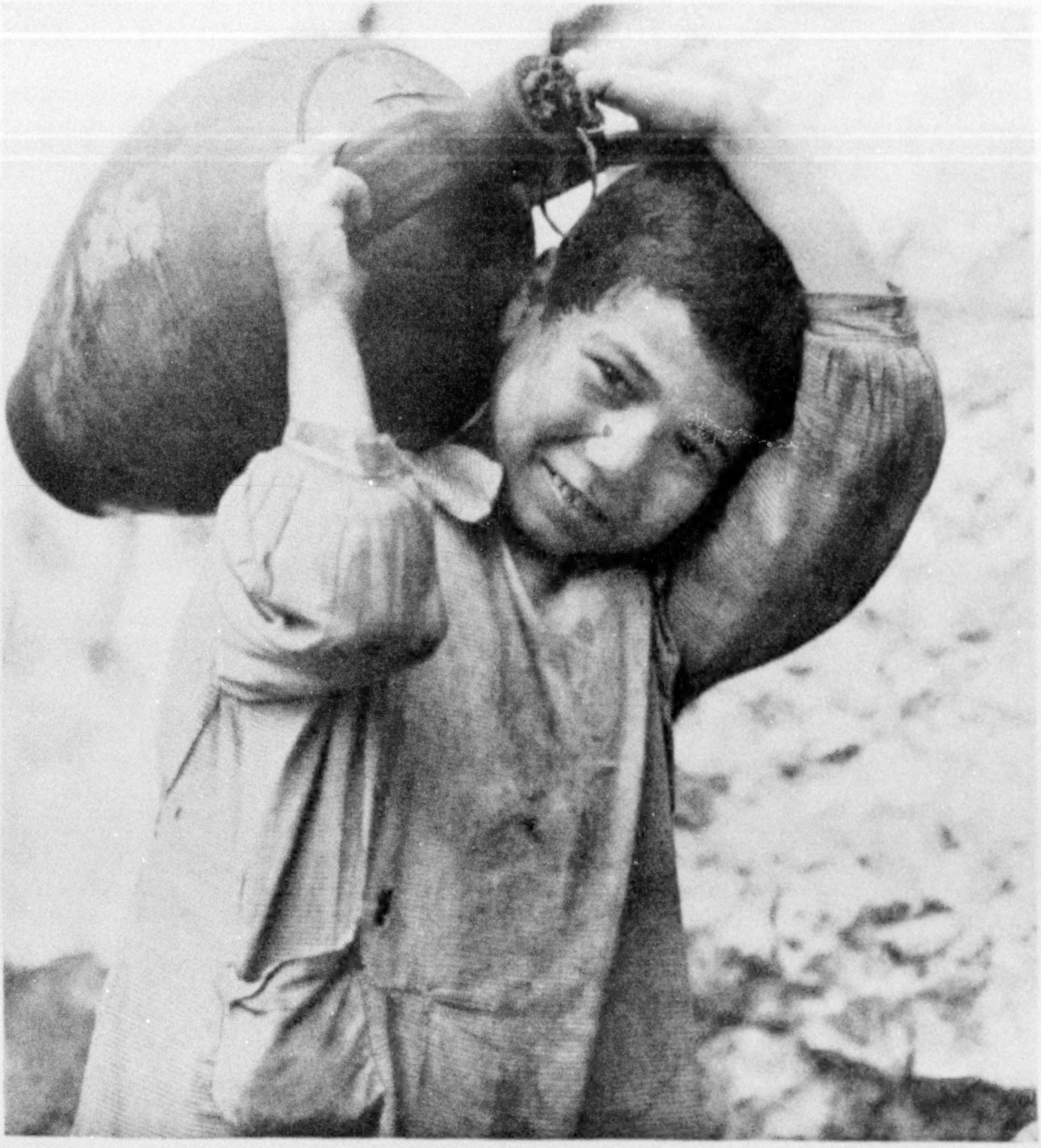
PELOPONNESIAN PEASANTS IN NAUPLIA, CHIEF TOWN OF ARGOLIS

Beautifully situated on the gulf of the same name, Nauplia is, for modern Greece, an unusually clean town. It was captured from the Turks by the Greeks just 100 years ago (December 12, 1822) and for 11 years was the Greek capital.

Greece is the country *par excellence* for picnics. It is a common saying in Athens, that "there is not a day in the year in which the sun is not visible for at least a moment." However this may be, one is generally assured of good weather for excursions, and when one adds to this the softness of the air, the beauty of the landscape, and the wealth of association, there is little left to be desired.

Another charm which the rambler in Attica is quick to remark is the absence of human life, even within an hour's walk of the capital. I have wandered over the hillsides for an entire day and have not seen even a shepherd boy.

One of the most delightful of the many trips out of Athens is to the Fortress of Phyle, which lies hidden away in the Parnes Range and guards what was once an important route, especially toward Thebes. It is true that there were other routes into the Bœotian Plain, but that via Phyle was of great importance. Over



A WATER-BOY OF ATHENS

this road came Byron and his friend Hobhouse, and it was the view from here that inspired the poet to write the familiar "Spirit of Freedom! When on Phyle's brow."

For the general traveler Phyle has a special interest, recalling its association with Thrasybulus. Toward the close of the Peloponnesian War, when the Athenians had been overthrown by the Spartans and a government favorable to the Lyconians established — "the "Thirty Tyrants"—Thrasybulus established himself here with a few comrades and, gradually strengthening his little band, finally was able to deliver Athens from the hated yoke of the Xenophile oligarchy.

An interesting feature of the fortress is that the gateway was so arranged in conformity with the local topography that assailants were obliged to approach it with the right side exposed. Thus an attacking force would be under the necessity either to wear their shields on their right shoulders for protection, and thus be powerless to throw stones or javelins, or else to lay themselves open to similar attacks from the besieged.

The fortress frowns on Attica and could only be held for long by a garrison

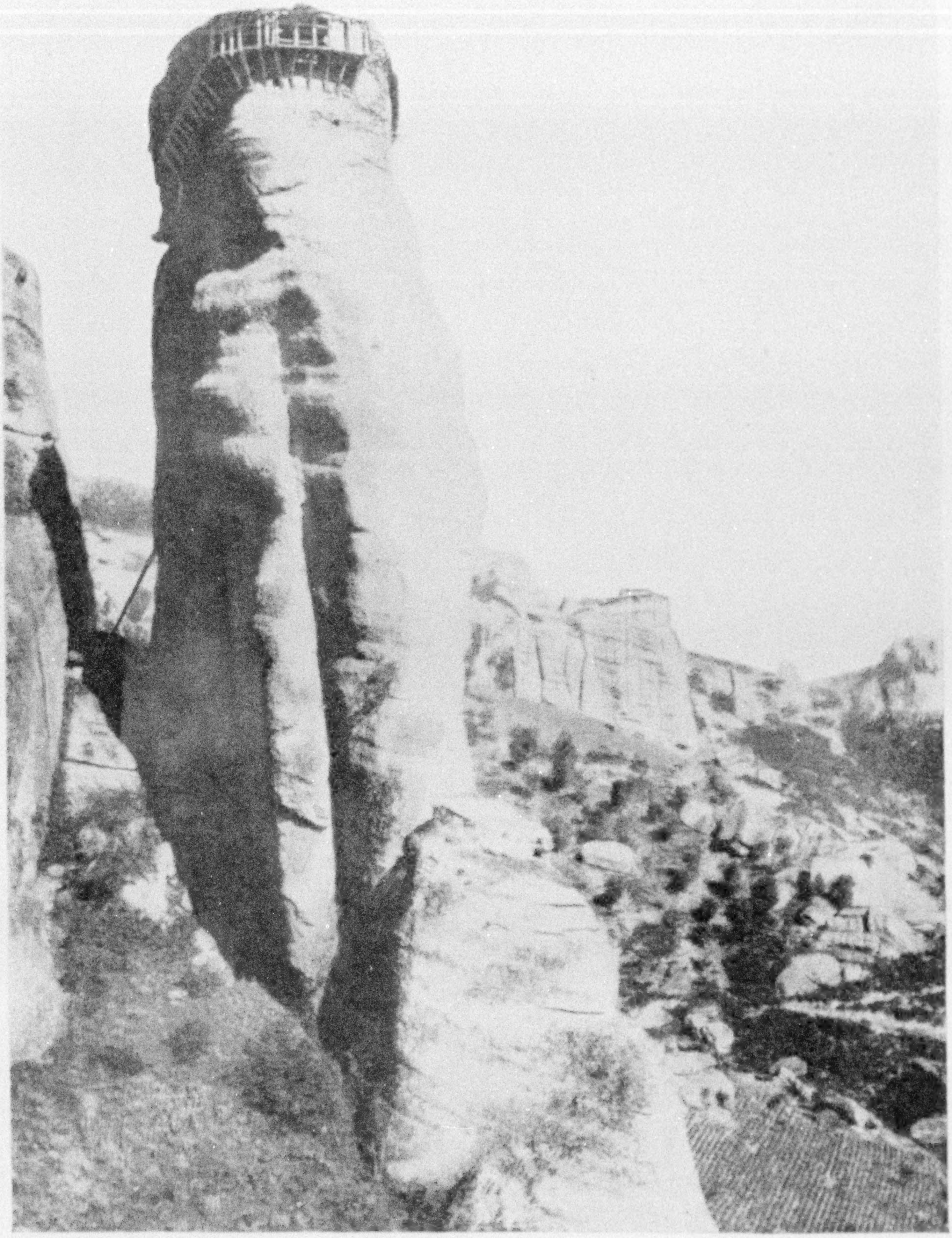
XUM

ON A MOUNTAIN ROAD IN THE PELOPONNESUS

Photograph by Fred Boissonnas

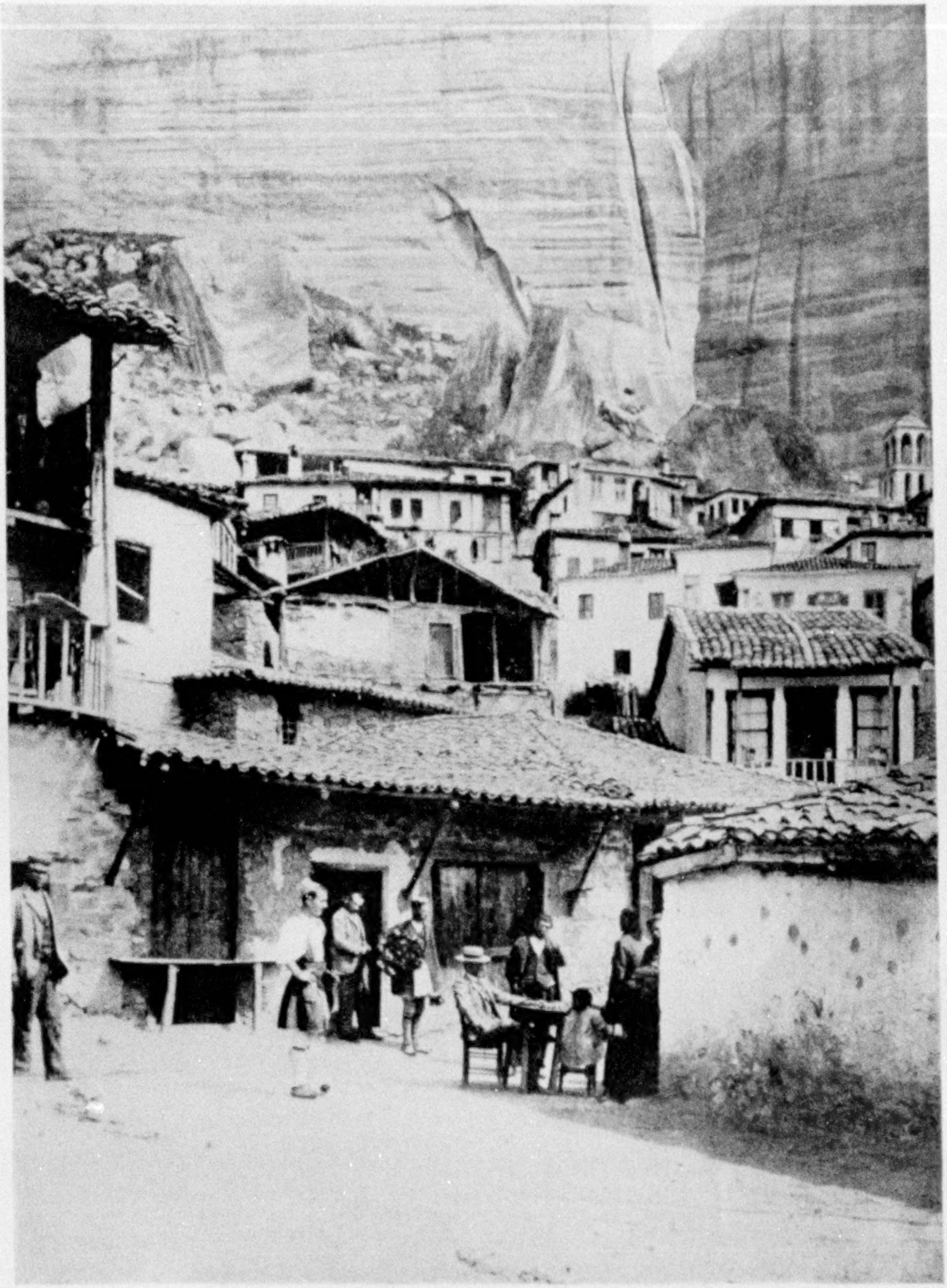
A ROADSIDE INN ON THE ROAD FROM TRIPOLIS TO SPARTA

Between Tripolis, the most important town in Arcadia, and Sparta, once the rival of Athens, the modern road is little used. Tripolis, which occupies the sites of three earlier cities, is only a hundred years old, but is one of the most important towns of the Peloponnesus. Sparta, less than half the size of its modern rival, is also a new town on an old site and was founded after the Greek War of Independence by King Otho.



A STYLITE MONASTERY PERCHED ABOVE KALABAKA

Although the monks of Meteora held a far different doctrine from Simeon Stylites, they also sought a pillar-like retreat above the clamor of worldly affairs. At one time there were twenty-three rich convents in this section of Greece, but to-day there are only seven, of which the one here pictured and several others are uninhabited.



KALABAKA, AT THE FOOT OF THE PILLAR ROCKS OF METEORA

This strange village occupies an elevated slope where the Peneios, the largest river of Greece, enters the plain of Thessaly. Just to the north are the Khassia Mountains, which more than once during the troubled history of Greece have formed the boundary that now lies much farther north.

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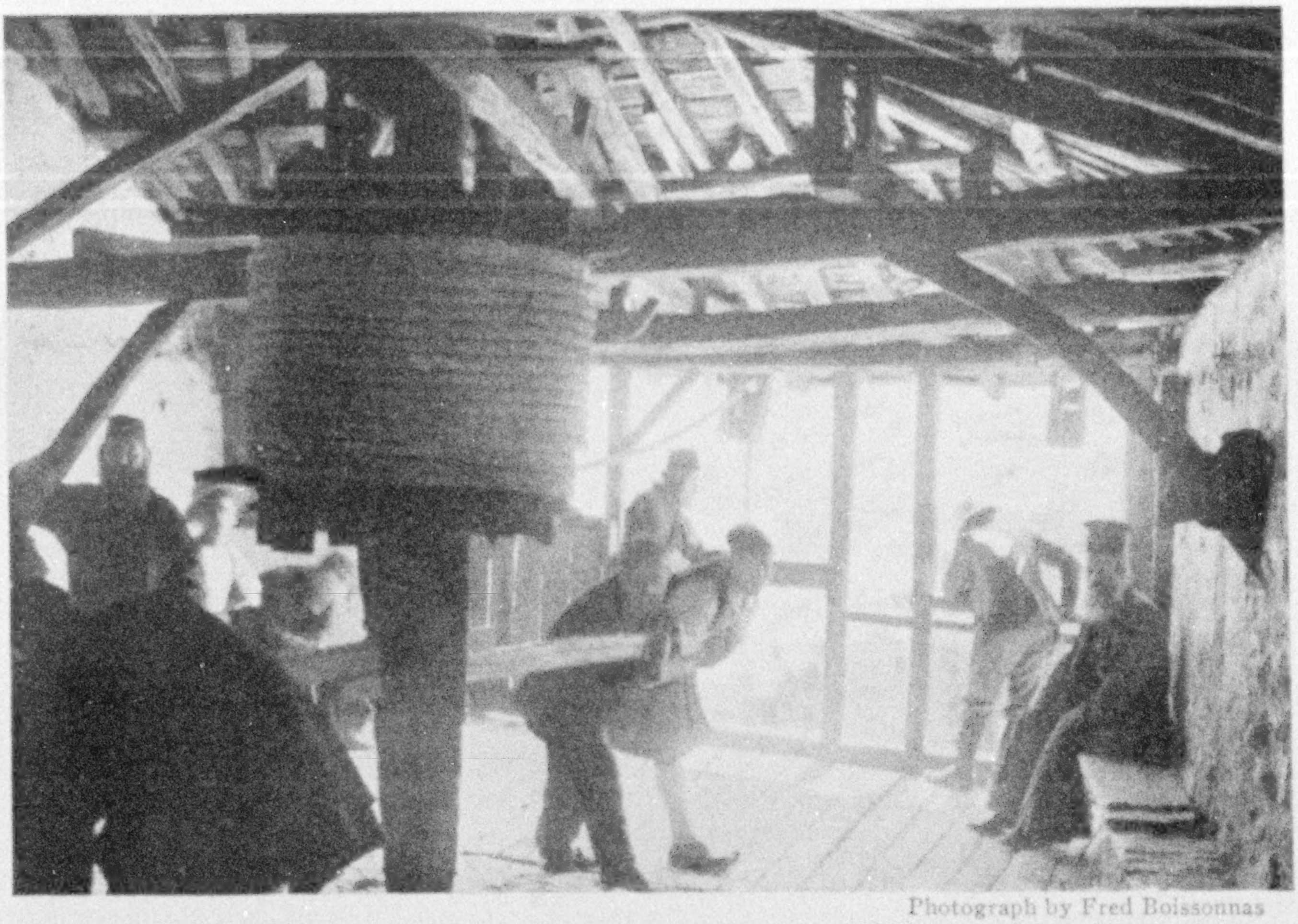

Photograph by Fred Boissonnas

THE MAN MOTOR OF A THESSALIAN ELEVATOR

The monks who dwell in the convents of Meteora are raised one at a time to their lofty abodes in nets or rope bags, which are hoisted by means of crude capstans (see also illustration on page 612). The ascent takes about three minutes.

that commanded the mountain district to the north. Its massive walls of cleverly joined masonry, with one circular and several square towers, which are still in a fair state of preservation, inclose a small oval platform which on three sides ends in precipitous slopes. Near the fort is the spring from which the garrison drew its water.

A VISIT TO ONE OF THE CAVES OF PAN

Two hours beyond Phyle is one of the numerous caves dedicated to Pan. The path is over a rocky slope between high cliffs and through a patch of pine forest to a deep gorge. Here begins what was in ancient days the rude pathway leading to the foot of the ravine. At a number of points the ground is giving way and it is a matter of no small difficulty to reach the bottom.

Once in the rocky bed of the torrent which fills this, the cave is seen a little way up on the further side. A short scramble and one reaches a small platform before the mouth of the grotto.

Apart from its picturesque surroundings, the cave has but little of interest to offer. There is a spring of limestone water of icy coldness and the soft earth which is banked against the walls sometimes offers a treasure in the way of a terra cotta lamp to those who have the patience to dig there.

The way home is by a solitary, difficult road, which leads to a picturesquely situated Greek monastery, called "Our Lady of the Defile." From the terrace of the monastery is a fine view down the gorge. Towering high above it is a lofty cliff, plainly visible from Athens and which, because of its chariot-like shape, is called "Harma."

Greek monasteries are true hospices and are required by law to entertain the traveler. However, these legal requirements would seem to be quite unnecessary, to judge from the writer's experience. The Greek monk seems a gentle and kindly type. Of the spontaneity of his hospitality and the cordiality of his reception there can be no doubt.

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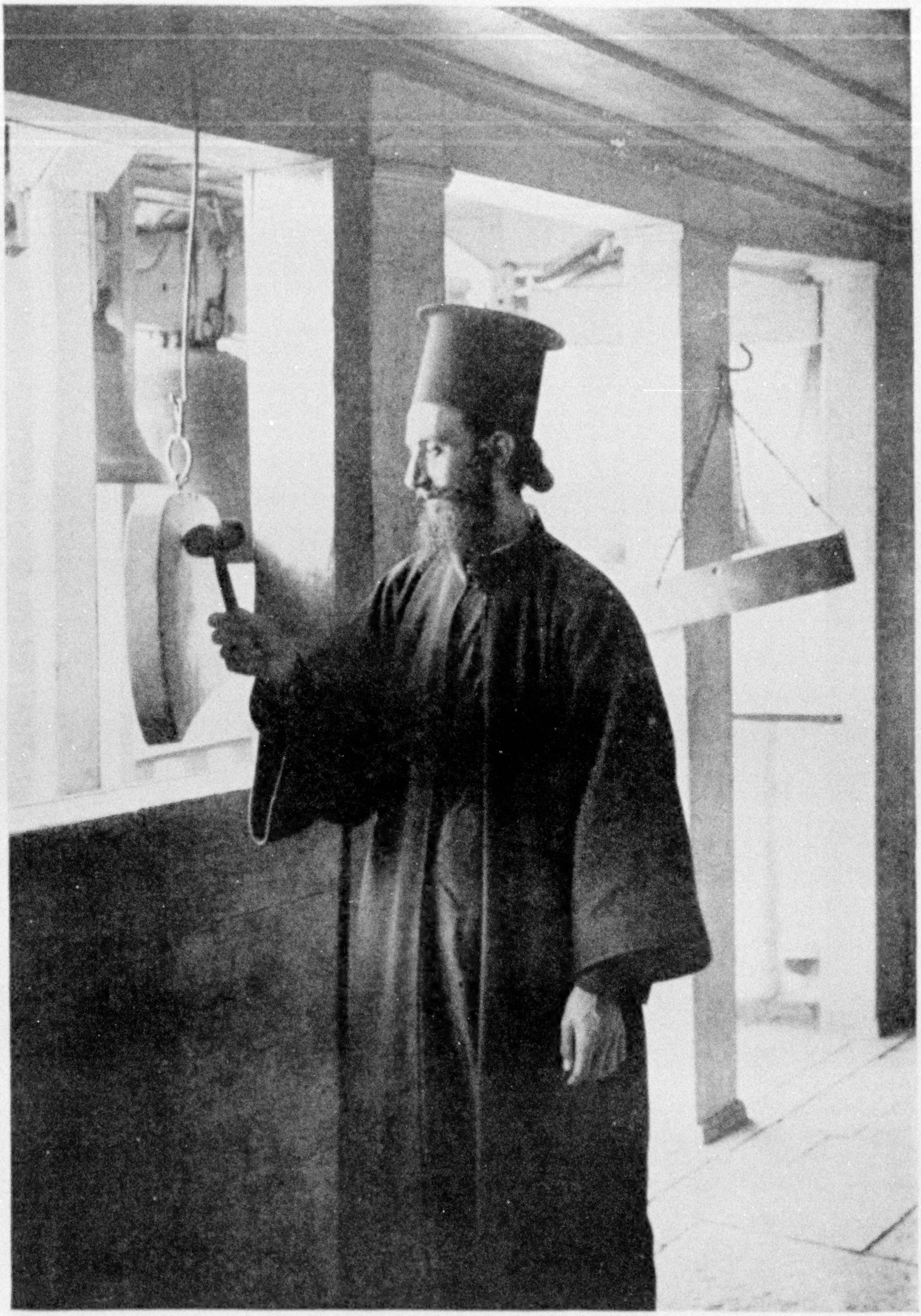

Photograph by Fred Boissonnas

IN THE BELL TOWER OF THE MOST IMPORTANT MONASTERY IN GREECE

The Convent of Megaspelæon, near the rack-and-pinion railway, which runs south from the Gulf of Corinth up the valley of the tiny Erasinos River, is situated in a vaulted cave. There are now only about 140 monks and the income has shrunk to a mere fraction of its former two million francs a year. The monks do not, as in many other convents, hold all their property in common, but each has his own revenue from lands and houses, some of which formerly were in Smyrna and Constantinople.

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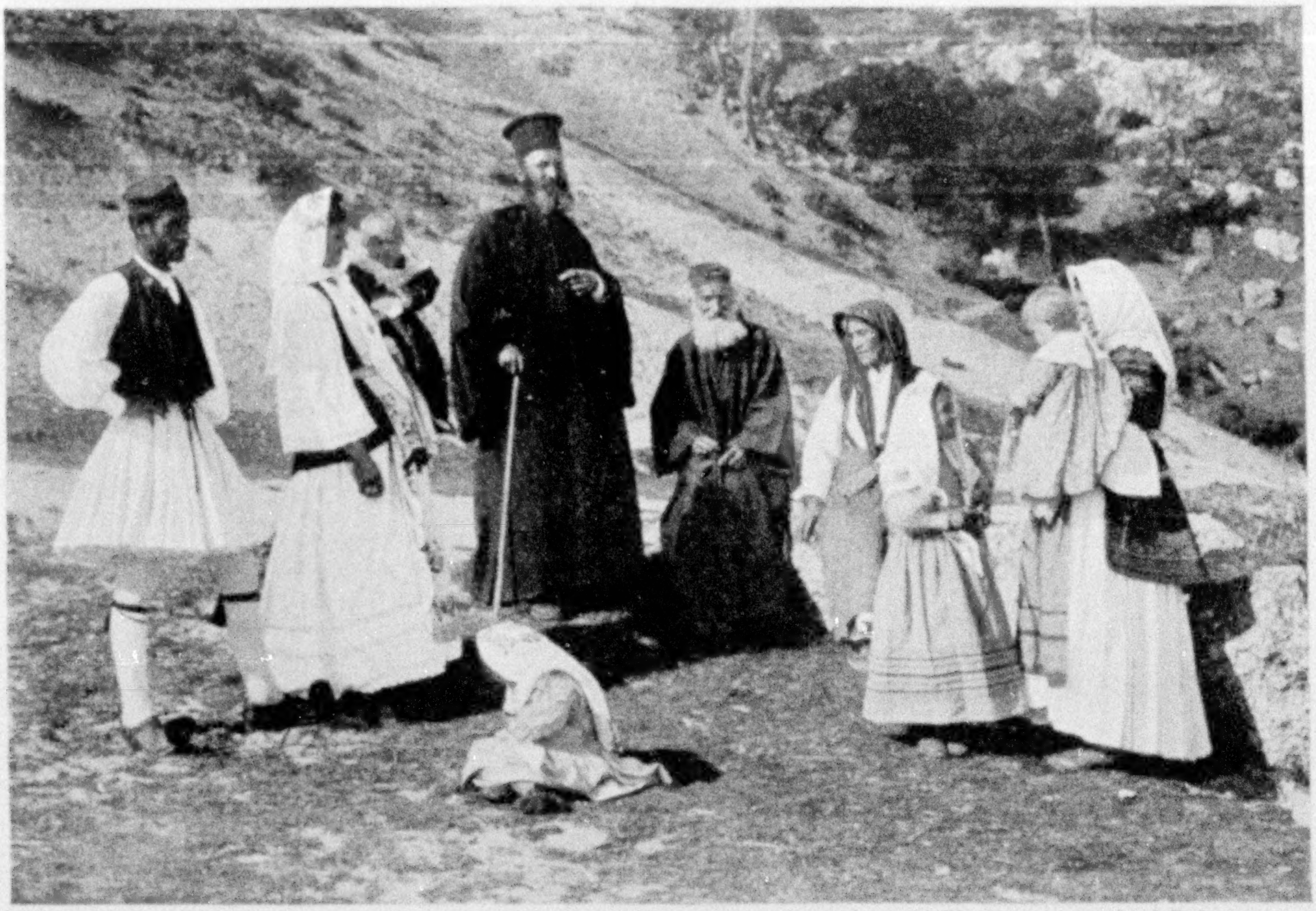


Photograph by Fred Boissonnas

GREEK PARISH PRIESTS WITH THEIR FAMILIES

The papas, or parish priest of Greece, is often so poor that he is forced to doff the long black gown and black skull-cap or high black hat and eke out his ecclesiastical income at some secular task. His wife, or papadia, aids him in his agricultural labors.

The coffee at the monastery of "Our Lady of the Defile" was often a poor thing and the bread at times incredibly bad, but the *mastika*, a mild Greek liqueur for which I at first conceived a violent prejudice "from recollections of early childhood" (it smells exactly like paregoric), was always of the very best quality.

On leaving the monastery the abbot and two of the lay brothers walked with us to the beginning of the road, which falls sharply to the valley, while one of the younger brothers brought a small bouquet of flowers plucked on the hillside near by.

We reached the village of Khasia, from which our ascent had begun, just as the soft twilight was stealing over hill and valley. Across the plain the lights of Kephisia began to twinkle; sheep-dogs were baying in the distance; there was a vague sound of far-off bells, and softly as the dew the stars crept into the quiet skies.

About fourteen miles from Athens lies the city of Eleusis, on the bay of the same name. Directly facing it, across the blue waters, is the island of Salamis.

ALONG THE SACRED WAY

From Athens to Eleusis leads a broad road, the "Sacred Way," which vies with the Appian Way in its claim to historical interest. The route from Athens is across a dusty plain, inadequately watered by the Cephissus, a part of which is outlined by olive groves. In these groves the philosophers loved to walk, and to-day they are the haunt of care-free children and young lovers, who have perhaps found a wisdom surpassing that of those gray beards of far-off days.

It is said that Tennyson loved water above all the elements and would go miles to see a gushing fountain; it is certain that a sojourn in Attica, where such a sight is rare, makes one linger by a stream. The love of old Greek philosophers and poets for streams and fountains is due in large measure to this lack.

Leaving the stream and the olive groves,

Photograph by Fred Boissonnas

AT THE VILLAGE FOUNTAIN IN THE MOUNTAINS OF PELOPONNESUS

the road begins to rise gently; we are passing through the lower ranges of the Parnes and a few minutes brings us to the 12th century convent of Daphne, evidently built on the site of a shrine once dedicated to Apollo. Back of the convent and away from the road is a forest of pine and fir affording a grateful shade, where we stopped for our luncheon (see illustration, page 603).

The convent of Daphne is in the very heart of the Sacred Way; at many points by the roadside may be seen parts of the original roadway cut in the living rock.

Near the end of the pass are the ruins of a temple of Aphrodite, with niches for votive offerings.

As we passed we noticed that in two of the niches flowers had been placed—by some pagan Greek, let us suppose, or say by some sophisticated modern, pretending to pagan influence, with his tongue in his cheek.

TREADING IN THE PATH OF THERMOPYLÆ'S HEROES

This is sacred soil we are treading; the path we press has known the footprints of the Three Hundred marching toward their rendezvous with Death at Thermopylæ, while in later centuries Roman legions and Huns and Vandals have made the encircling rocks echo to their shouts.

From the earliest times this road was the natural route to the Peloponnesus, leading over the Isthmus and on to Corinth and beyond.

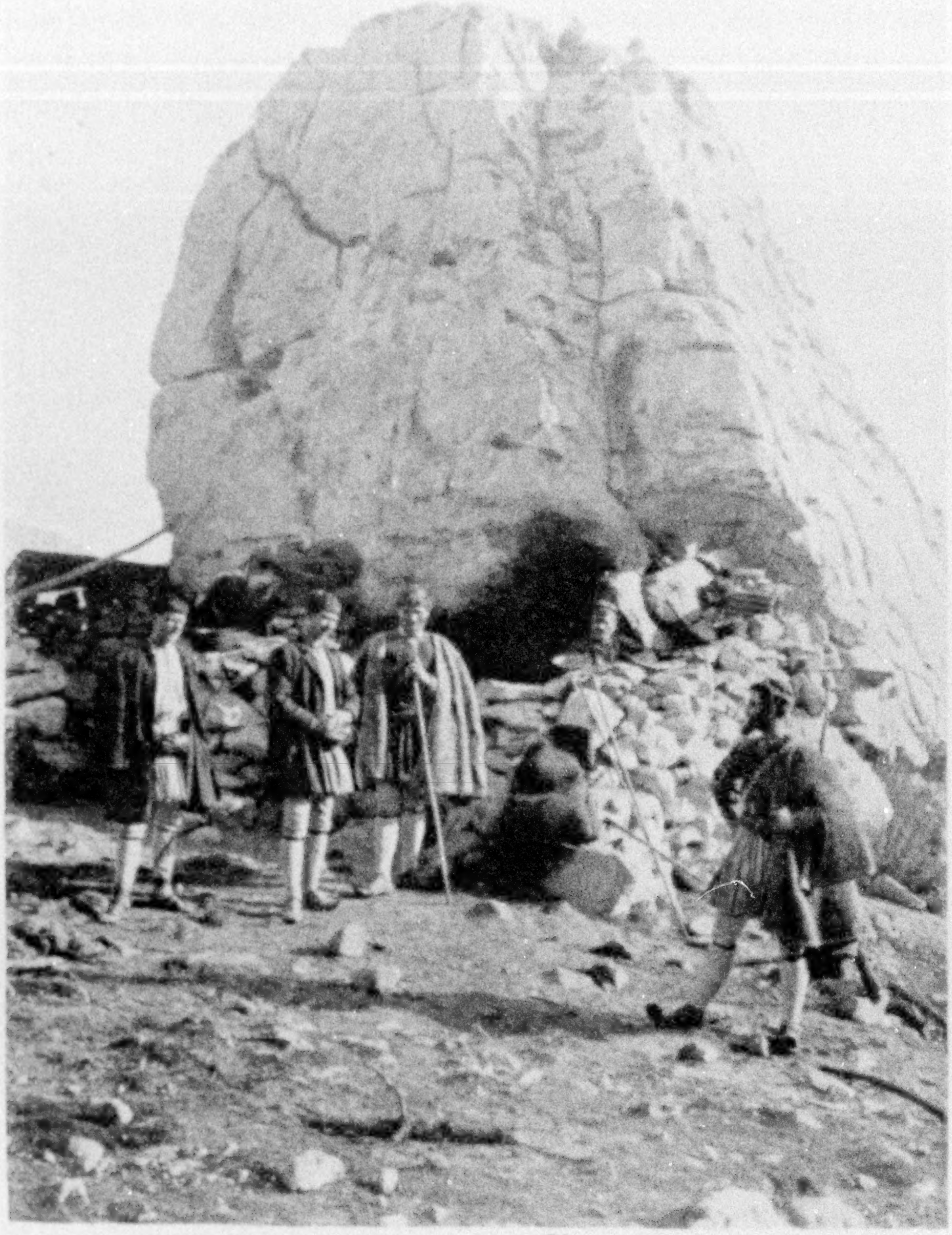
AT THE SHRINE OF HUSBANDRY

A turn in the road brought the bay into view. A soft wind blew from the gates of the sun and seemed to bear to us some of the lovely color of the water; overhead there was a Maxfield Parrish sky, and underneath the brown soil of a parched land.

Coming to the water's edge, we stopped and dipped our hands into the blue and tried to fancy ourselves as pilgrims to the shrine, or else candidates for at least the Lesser Mysteries.

Resuming our march, we went slowly on, skirting the bay all the way to the town.

In the plain through which we passed, man, according to the Greek tradition, first practiced the art of husbandry, with Divinity as a teacher, and at Eleusis took



Photographs by Fred Boissonnas

ON THE STORIED HEIGHTS OF PARNASSUS

Once sacred to Apollo and the Muses, Parnassus is now the haunt of shepherds and guides.

place the solemn worship of the benefactress, the Goddess Demeter. Twice a year the memory of Heaven's inestimable gift was celebrated, the periods falling roughly in the months of February and September, thus synchronizing with the revival and decay of nature.

A part of the celebration was a torchlight procession which left Athens and passed over the Sacred Way. On arrival at the temple solemn initiatory ceremonies took place.

The nature of these Mysteries has long puzzled scholars and archeologists and it is now thought that the details are lost beyond recall. However, one of the great initiates, Cicero, has left on record that the Mysteries taught "not only to live happily, but to die with a fairer hope."

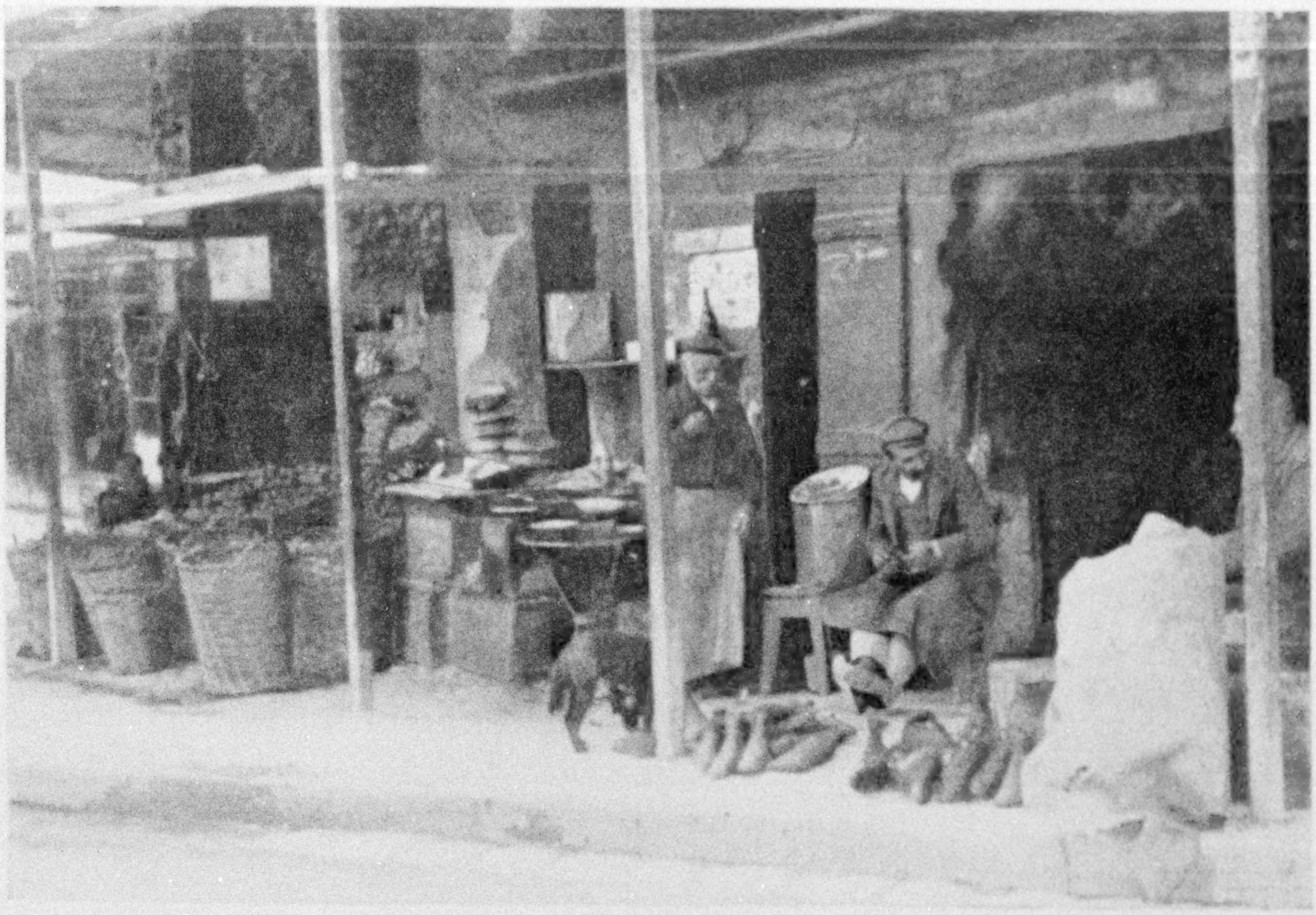
Little is now standing of the ancient structure which greeted the morning sun in all its beauty until the devastating Goths under Alaric swept over Eleusis their besom of destruction.

We approached the precincts through the Propylæa, of which nothing is standing today save the bases of a few columns. The fragments about us are doubtless those from Hadrian's Gateway. Once past these portals, one gains an idea of the grandeur of the original structure. Before and above us is the emplacement of the great Temple of Mysteries, through the portico of which one entered the precincts of the temple proper, cut in some measure into the solid rock of the Acropolis.

But Eleusis is a melancholy place; "Ichabod" seems written wherever one turns, and it was with a sense of relief that we retraced our steps and sought once more the shore and looked out over the silent beauty of the waters toward Salamis.

THE BATTLEFIELD OF THERMOPYLÆ

Railways and Thermopylæ! The two words clash; and yet if one wishes to visit this sacred field he has the choice of leaving Athens over the iron way or else spending days on bad roads, suffering the annoyances and discomforts of Greek country inns, which latter seem built with a view to affording perfect cover for the lesser fauna of the country, with which they swarm.



THE TRAIL OF THE TURK IN ATHENS

A hundred years ago Athens was in the hands of the Turk, and the modern city contains many quarters of oriental appearance.

The railway leads toward the northwest, traversing the Attic plain and the Plain of Bœotia and boldly scaling the rocky fastnesses of Phocis and Doris. Since the completion of this line to Lamia, the wise traveler goes to that point and from there rides to the battlefield.

Thermopylæ, as its name indicates, was so called because of certain hot springs which rise at the foot of the mountain and flow across the plain to the sea. The water in the springs is quite clear, but in its passage through the plain it appears an exquisite bluish green color, with at times a tint not unlike lapis lazuli when the sun is at a certain angle.

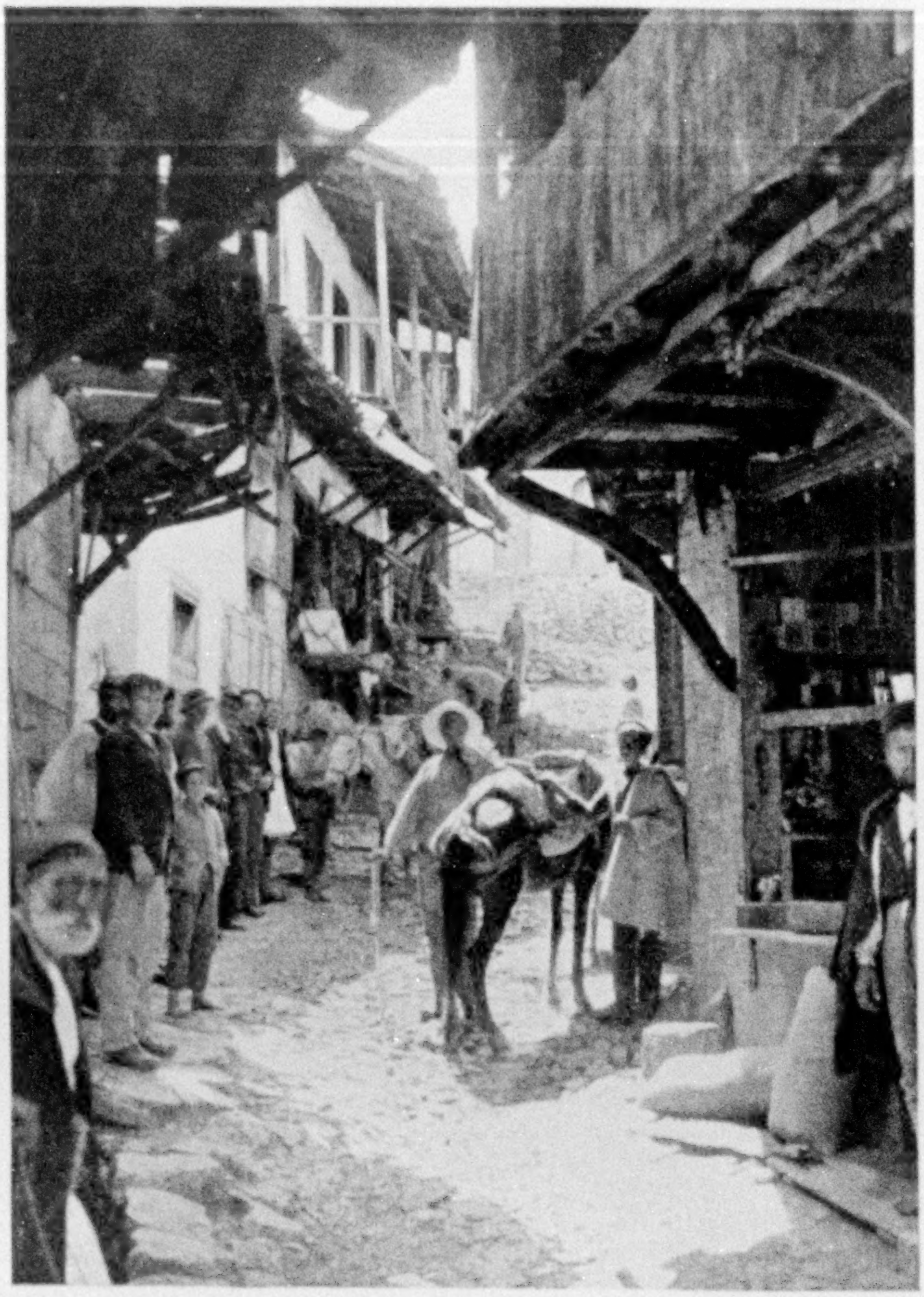
The plain to-day is in some places nearly three miles broad and covered with a heavy underbrush. Many changes must have taken place in the topography of the country, for the pass held by Leonidas and his band was less than 200 feet wide—a wall of rock on one side, the sea on the other.

In looking on this scene it is hard indeed not to philosophize a little, recalling that the dauntless courage in the face of certain death displayed at the time gave to the Greeks a moral ascendancy over these adversaries which was never lost. Herodotus tells us that at one time "the very name of the Medes deepened the terror of the Greeks."

It is with a pang of regret that one searches almost in vain in Greek annals for other examples of fortitude and justice and austere virtue which frequently characterized the Romans—a Regulus pleading for a continuance of war, although it involved his own shameful death; a Brutus delivering his own son to the executioner; a Lucrece preferring death to dishonor; a Virginius slaying his own child that she might remain unsullied.

Yet a Spartan mother—she who bore Pausanias—and Leonidas of Thermopylæ occupy places of "high collateral glory" with those Romans. Who can doubt that the real victor at Thermopylæ was Leonidas and not Xerxes?

It is related of these Spartans that certain games wherein the loser would be obliged to declare himself beaten were forbidden by the rulers, for it was found that many youths preferred to give up



Photograph by Fred Boissonnas

A STREET IN THE MOUNTAIN VILLAGE OF ANDRITSÆNA, SOUTHERN GREECE

their lives rather than make such an avowal.

SUNIUM, SUPREME BEAUTY SPOT OF GREECE

I think if I were asked to name the most beautiful spot in Greece, the one in which loveliness and extent of outlook, coupled with a wealth of tradition, make the greatest appeal, my reply would be the Temple of Poseidon at Sunium (see illustration, page 606).

A great author remarks somewhere that no matter what opinion he held, he was always comforted to know that some one else shared it. I confess to a slight gratification in recalling here that Byron says that "in all Attica, if we except Athens itself and Marathon, there is no scene more interesting; to the antiquary and artist (it is) an inexhaustible source of observation and design; to the philosopher the supposed scene of some of Plato's conversations will not be unwelcome."

This beauty patch on the face of Nature lies at the extreme southernmost point of the peninsula which is embraced in the modern province of Attica. It is a rugged headland rising 200 feet above the sea.

Apparently, from earliest times the spot was sacred. Homer and other ancient writers chronicle its sanctity, while its beauty has been sung in modern times by Byron, Chateaubriand, and de Hérédia.

That erudite individual, "every schoolboy," will remember "Place me on Sunium's marble steep." De Hérédia's exquisite sonnet, beginning "Le temple est en ruine au haut du promontoire," is perhaps less well known.

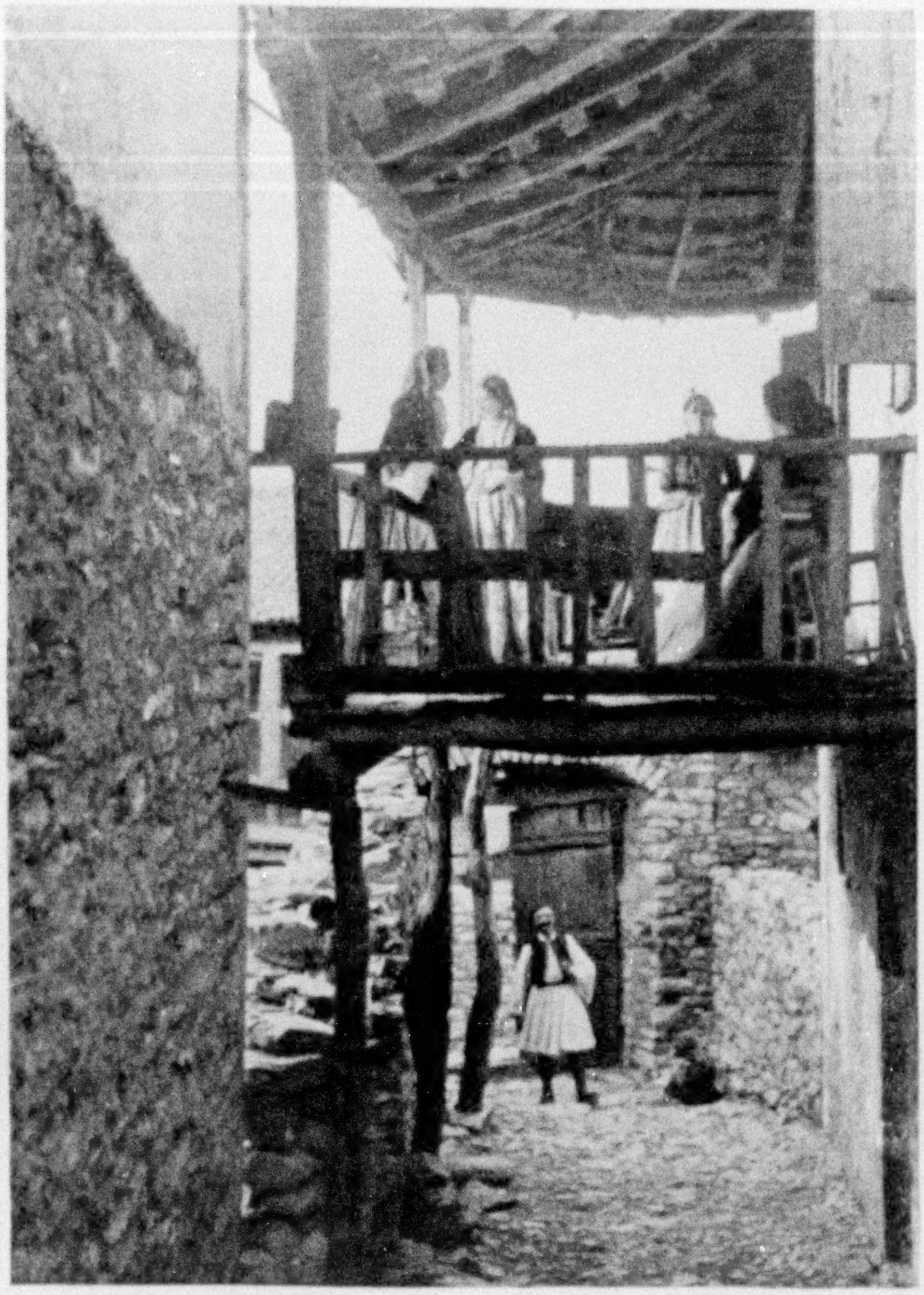
The remains now crowning the steep are from the temple built toward the end of the fifth century B. C.; thirteen massive marble columns are still standing. On one of these Byron carved his name, and this is still visible.

To modern eyes the act seems banal and unworthy of the poet; yet it is interesting to recall that Chateaubriand, who was prevented by high water from visiting the Great Pyramid, charged a friend to write his name thereon, "according to custom," at the first opportunity, and concludes in a half apologetic tone to defend this, declaring that one must not omit the little duties of the reverent traveler, and asking, "Do we not love to read on the fragment of the statue of Memnon the names of the Romans who heard its sigh at break of day?"

The two writers probably followed what was considered merely conventional a century ago, when that storehouse of trite utterances, the visitors' book, was not so common as now.

THE MARBLES OF SUNIUM'S TEMPLE A DAZZLING WHITE

It is interesting to notice that the marbles of this temple, drawn from a near-by quarry, are to-day, after twenty-five centuries of the sea-wind's play, of an unsullied and dazzling whiteness; those of the Parthenon have with time taken on a marvelous golden brown tone, but have better resisted the ravages of years than those at Sunium.


Photograph by Fred Boissonnas

A COVERED BALCONY IN ANDRITSÆNA

We looked out over the blue waters toward the double line of the Cyclades. In the dimmest northeast distance Eubœa sprawled its length, with Andros and Tenos as pendants to its brown throat.

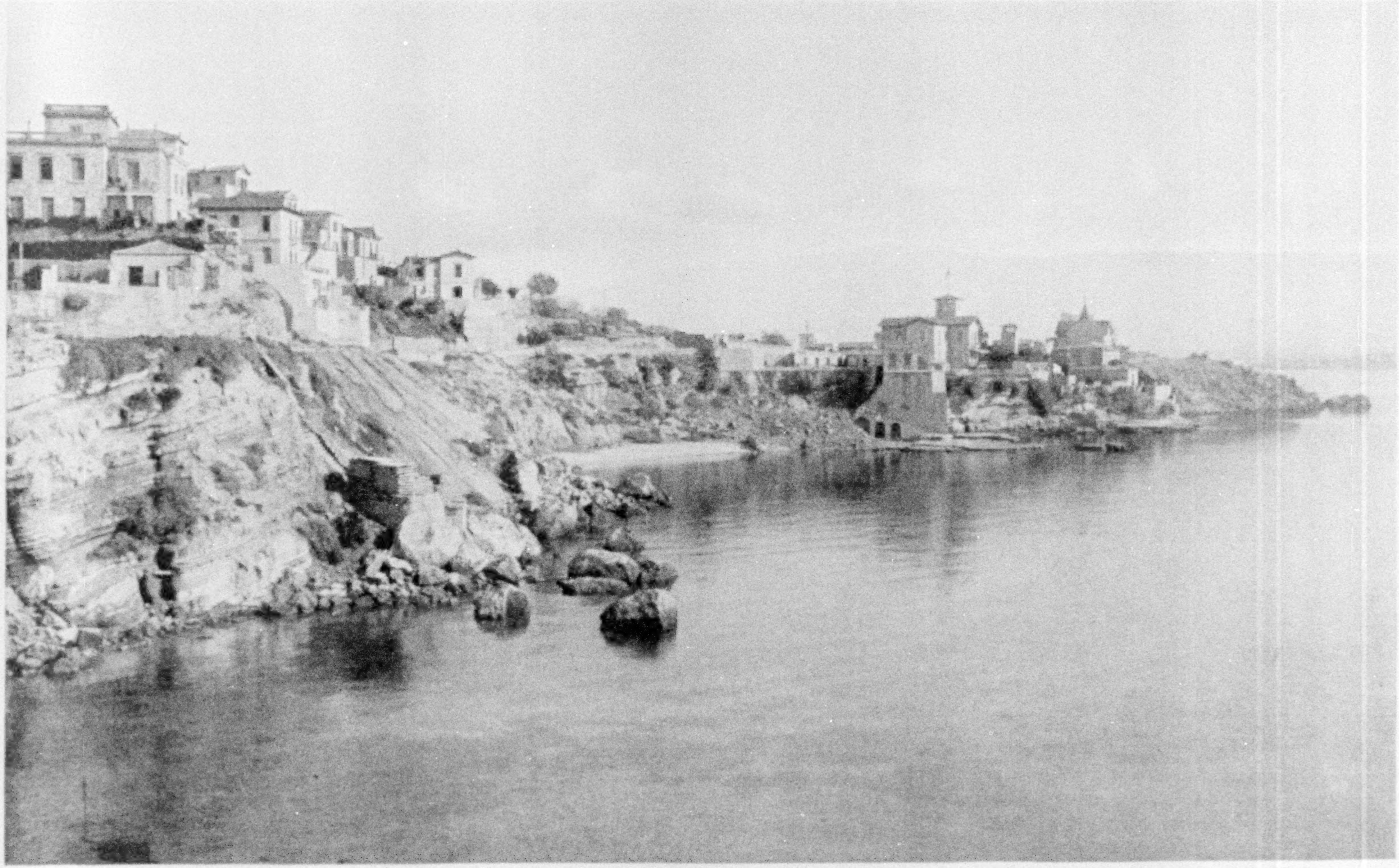
It was a fair, cool, clear day and the island of Melos was dimly visible, lying almost due south. It was there, it will be recalled, that in 1820 the famous Venus was found and carried to France through the activity of a French diplomatist.

Even while we looked, the kindly breeze freshened and ugly clouds heavy with rain flew up from Oros; fishing-boats, like homing birds, began to run toward the shore; as they drew near, the wind increasing in violence, sail was shortened, and they seemed like huge gulls shot on the wing, as the varicolored canvas came fluttering down to the decks.

There is at Sunium an aged Greek who exercises a guardianship over the ruins. We visited his little garden, planted in a series of irregular terraces sloping down to the sea. Some one recited sonorously Swinburne's "Forsaken Garden," and the fascinating meter so harmonized with the stretch of sea and sky as to give to it a charm such as we had not realized before.

ALONG THE GREEK RIVIERA

There is a bridle and footpath from Sunium to Athens, skirting the coast, necessitating a night in the open—not at



Photograph by Fred Boissonnas

PHALERON, THE SEA RESORT OF MODERN ATHENS

Six miles from Athens and only a short distance from the Piræus, this popular bathing place is connected with both of its larger neighbors by an electric tram. Here in summer French operettas are given in the open-air theater, and band concerts vie with motion pictures for attention.

all disagreeable under the mild Attic sky. Along this riviera are bays and inlets, each of which makes a special appeal, either in the loveliness of its limpid water, in the combination of hill and sea, or else in the friendly forests, which come down to the very water's edge.

About half-way to Athens, near Vari, is a cave dedicated to Pan and the Nymphs, which was visited by Pausanias. Between Vari and Athens are many tumuli which popular tradition gives as tombs of early kings. However, an archeologist who has dug in a number of these assures me that this is not the case.

Within plain view of Athens and crowning a headland is a little chapel dedicated to St. Cosmos. It is a favorite picnic spot for Athenians. The waters of the Saronic Gulf play about the foot of the headland and there is a little bay near by which beckons to the bather. Usually small fishing craft can be taken from this spot for the voyage home.

SPOTS STILL SCORNED BY TOURISTS

From Athens to Corinth is an easy three hours trip by motor; the road follows the Sacred Way to Eleusis, and from this point the sea is constantly in view.

It is hard not to grow enthusiastic over the scenery of Greece, and a word must be said here of the unusual beauty of this tract of country. The mountains rise on the right to a height of several thousand feet; the roadway seems hung against the face of the cliff at many points, rising and falling to take advantage of the changing topography, now within a few yards of the waters of the gulf and again rising far above them.

The hills are covered with pine forests and low scrub, not of sufficient density to mar the perfection of outline. The sight calls up a phrase referring to Greek art, but applicable to its scenery—"The accuracy of its beauty." Looking out over the sea, dancing in the sunshine and dotted with small craft, the eye has a sweep of many miles.

In any country but Greece this section would be filled with hotels and boarding-houses, perhaps a casino, and there would be golf and tennis.

May Apollo pardon me for making known, even in this infinitesimal degree, the compelling beauty of what must have been one of his haunts and one dear to Pan and the Nymphs. Half of me yearns for this loveliness to be known to the elect and the other half shudders at the idea of its possible vulgarization in coming years. To-day all this beauty is practically unknown to the average traveler, and I for one cannot but hope that it will remain so; it is, perhaps, too intimate, too poignant, ever to become a popular tour.

After leaving Eleusis, the principal city is Megara, where the inhabitants rather plume themselves on their Greek descent, set as they are, like an island, in the midst of Albanians, by whom Attica is largely populated.

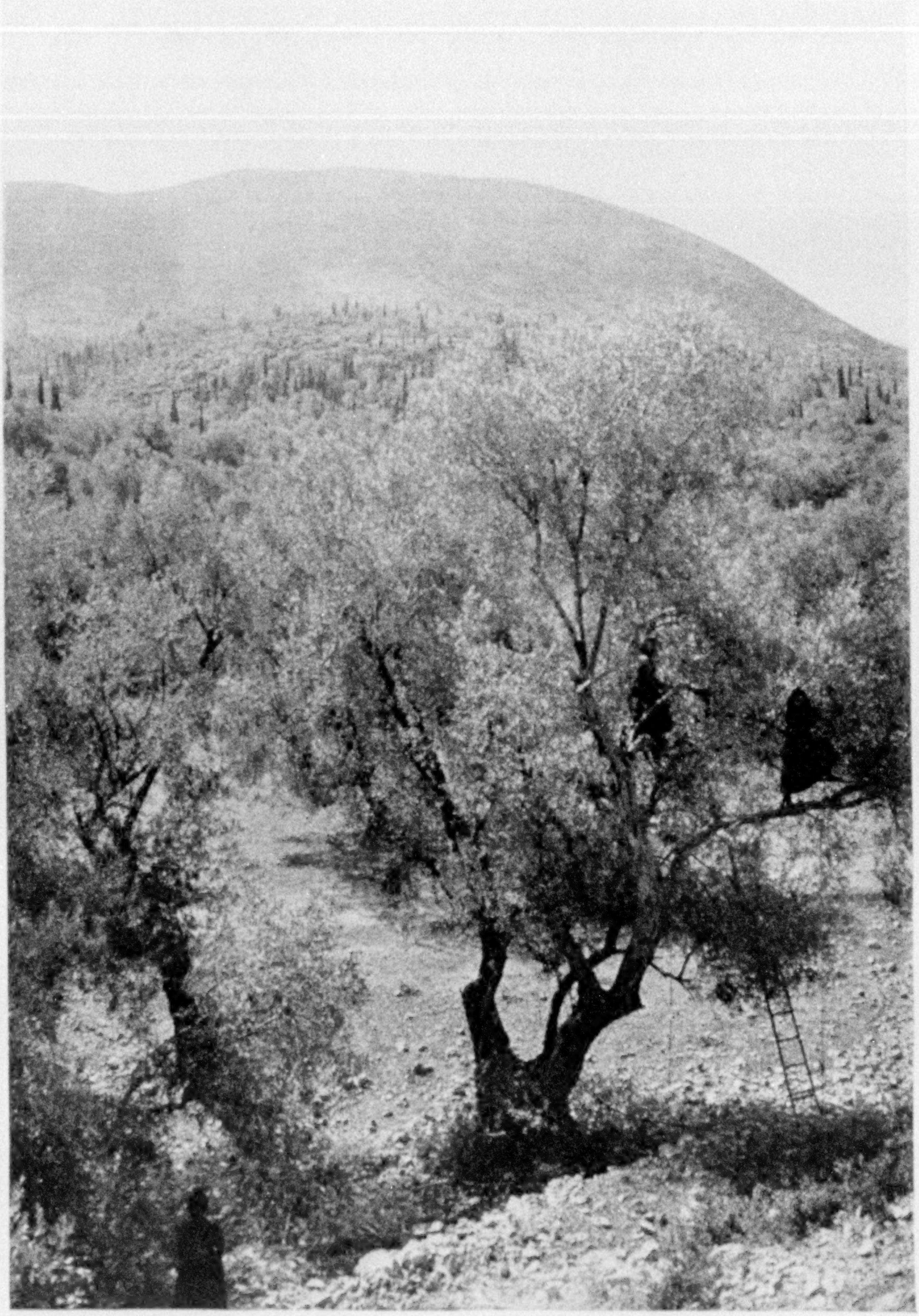
The Megarian women have the reputation of being very beautiful, and I must say their eyes are fine, but their ankles are vaguely reminiscent of those of a good thick girl, a sister of Hans Brinker, whom I once knew. She sold cream puffs of peculiar flavor near the school I attended, and to her, at twelve years, I gave my heart unreservedly. Through the rosy lens of memory I recall those ankles—solid, substantial, work-a-day, but quite without inspiration to artist or sculptor, or even to an average student of comparative anatomy like myself.

AT PERFIDIOUS SKIRON'S HAUNTS

Toward Megara there are superb views of the sea and the mountains of the Peloponnesus. We climbed slowly and finally passed near the face of an almost perpendicular wall of whitish rock. The road here is supported by buttresses dating from classic times.

On the cliff above us, in ancient times, that well-known freebooter Skiron held out. It will be recalled that one of his engaging tricks, after robbing a traveler, was to compel him to wash his feet, and to kick the wretch into the sea below while thus employed. Our revengeful spirit is gratified by the knowledge that Theseus paid the old villain in his own coin.

A few miles before reaching Corinth, the road crosses the Isthmian Canal, which suggests a sword-cut in the brown earth. This was excavated between 1881 and 1893 and links the Gulf of Corinth with the Saronic Gulf, thus shortening the journey from the Adriatic to Piræus by more than 200 miles. The idea of the



Photograph by Fred Boissonnas

AN OLIVE GROVE ON THE ISLAND OF ITHACA

Olive oil, wine, and currants are the principal products of the few arable acres on the island famous in Greek legend as the birthplace of Ulysses, hero of the Odyssey.

canal was by no means a new one; it was seriously entertained under Cæsar, Nero, and Hadrian (see illustration, page 590).

WHERE LAMIA PRACTICED HER WILES

A short distance from the eastern end of the canal is Cenchreæ, which was in classic times the Saronic port of Corinth. On the road between the two cities one of the earliest "vamps" in history, named Lamia, met a youth of Corinth named Lycius, to his undoing—*vide* Keats. The Lamian method is recommended to our modern motion-picture artists as being equally effective and far more artistic than the Saint Vitusian wriggle and crawl that now characterizes their art.

Not far from the bridge may be traced the ruins of a tramway on which in ancient times small craft and merchandise were dragged across the Isthmus.

The Isthmian games, held biennially, took place here and were especially frequented by the Athenians, their institution being commonly assigned to Theseus.

Two notable historical events are connected with this spot. Here Alexander the Great, before starting on his expedition against Persia in B. C. 336, caused himself to be hailed as the leader of all the Greeks. More than a century later a Roman consul announced to assembled Greeks that Imperial Rome had vouchsafed to them the gift of independence. "'Tis Greece, but living Greece no more."

Shortly after crossing the canal we enter New Corinth, a modern town of about 5,000 people, which was laid out some seventy years ago, following the destruction of the old city by an earthquake.

Dominating the landscape for miles stands the symmetrically shaped mountain known as Acrocorinth, crowned today by medieval battlements, the work of military engineers in the service of Venice and Turkey and representing the last word in the art of their time—glacis, ravelin, curtain, revetment, scarp and counterscarp, redan.

From the earliest days this bold summit, which rises nearly 2,000 feet above the plain, has been a sacred and important spot. Here was a temple to Venus, of which a few fragments still remain; at the top is the spring Pirene, which legend tells us gushed forth at a stroke from the hoof of Pegasus.

Up to the time of Greek independence the Turks admitted no one to the citadel and but little is known of its history.

The view from this height is one of the finest in Greece. To the south our gaze commands the valleys and hills of Argolis. To the north we look across the town, lying far below us, on to the glossy surface of the Corinthian Gulf; farther to the north, and most imposing in its grandeur, is Parnassus, which raises its head, snow-clad until far into the spring; to the east is the Attic plain, while to the west tower the lofty Arcadian hills.

In the spring and autumn the outlook over the fertile plain is a joy to behold. One cannot but think that St. Paul had in his mind's eye a view from this crest, which he doubtless visited, when he wrote to the Corinthians of his day and, drawing a parallel from the fields of ripening grain below him, argued the soul's immortality.

To an American, Corinth is of special interest, since it is here, on the site of old Corinth, that the American School for Classical Studies has carried on its labors, which have been crowned with brilliant success.

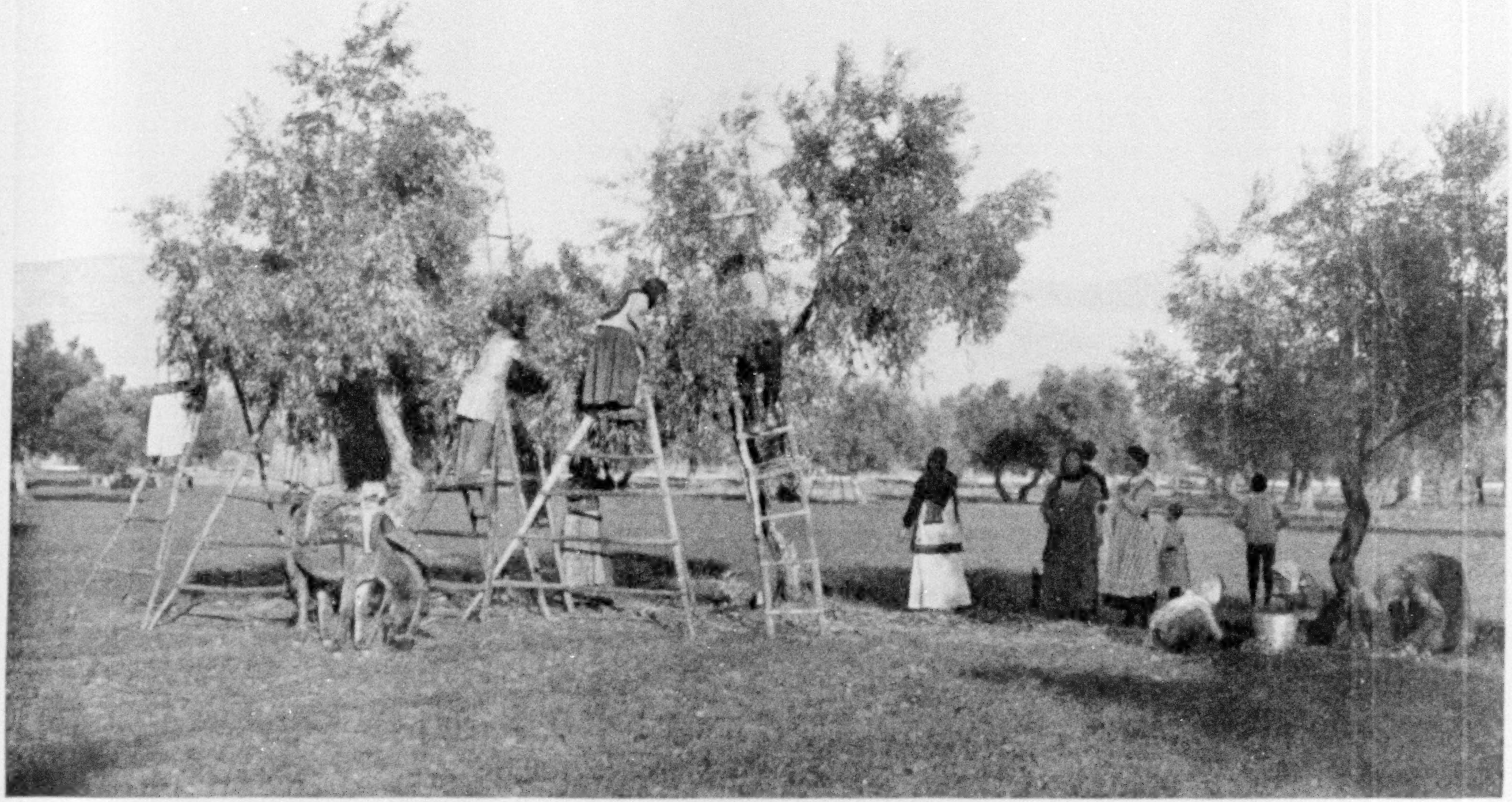
The people of old Corinth have reason to be grateful to the American school and to the American Red Cross, for these two, in conjunction with the municipal authorities, have brought about extensive and costly changes and improvements in the water-supply of the town.

A JOURNEY TO DELPHI

From Piræus to Itea, the port of Delphi, small Greek steamers ply daily, making the voyage in about eight hours. It is only a few miles on horseback, carriage, or foot from the port to the site of the temple, while from Delphi one may ride or drive through the ranges of Parnassus to a point on the railway linking Athens and the north, whence the return journey to the capital is made in a few hours. But of all this more anon.

We left the Piræus early on a May morning. There was still a dash of freshness in the air which made one welcome the warm sunshine. The course lay between Salamis and Ægina, straight to the mouth of the Corinth Canal.

On our left lay a group of islands, beginning with Pente Nisia (the Pelops of the ancients), while beyond were to be



HARVESTING OLIVES IN GREECE

Greece produces 25 quarts of olive oil per capita annually, and the olive is second only to the currant in public esteem. The scraggy, silver-leafed trees form a patch of dusty green on almost every Greek landscape, from which the forest trees have long since disappeared.

seen the mountains of Argolis. On the right was the coast to which we have referred in the excursion to Corinth.

On arriving at the mouth of the canal we were able to enter almost immediately, and the four miles were traversed in about twenty minutes.

Once in the Corinthian Gulf, the little vessel plunged ahead, having on one side the fertile Achæan coast, beyond which lay a range of graduated heights, and on the right, and in full view throughout the day, the unbroken mountain range, with the thrilling summits of Helicon, Parnassus, and Kirphis outtopping all.

The day went as such days go, every few minutes being marked by some new beauty or some object of interest. The sun was sinking beyond the hills when our craft turned its head into the bay of Itea and the lights began to twinkle on the rocks over the little town.

A MODERN GREEK DANCE

We landed in a small boat and repaired to one of the numerous coffee shops which front the shore. In a few minutes we were surrounded by a curious but friendly crowd, among them quite a number who had been in America or who had friends there. With their help we were soon able to complete our bargain for a carriage, and, throwing in our baggage, we started for the home of the Oracle.

We rode on in the gathering gloom through a succession of olive gardens and vineyards which cover the entire plain. At the end of an hour the road began to ascend sharply, and here it was suggested that we might take a short cut up the hillside and arrive in advance of the carriage.

With a Greek boy—Aristides Epiglottis—as guide we started off. It was now black night. Friendly lights winked at us through the trees; there was a heavy earthy smell in the air; from a distant sheepfold a gentle bleating could be heard; occasionally a sheep-dog barked and was answered by colleagues on neighboring hillsides.

As we approached the crest of one of the foothills, there came from a building near by a curious throbbing noise mixed with a rapid movement of feet. My curiosity was so strong that I drew near and looked through the window and saw, in what would be called in olden times the inn parlor, perhaps twenty men, by their dress all peasants, dancing to a singular measure. Hands clasped in a long line, the leader, with a handkerchief in his free hand, making what seemed to be several steps forward and two back. Occasionally he uttered a sharp cry, which might have been a dancing direction. At a given signal he gave place to the man immediately following him, and the monotonous movement went on again.

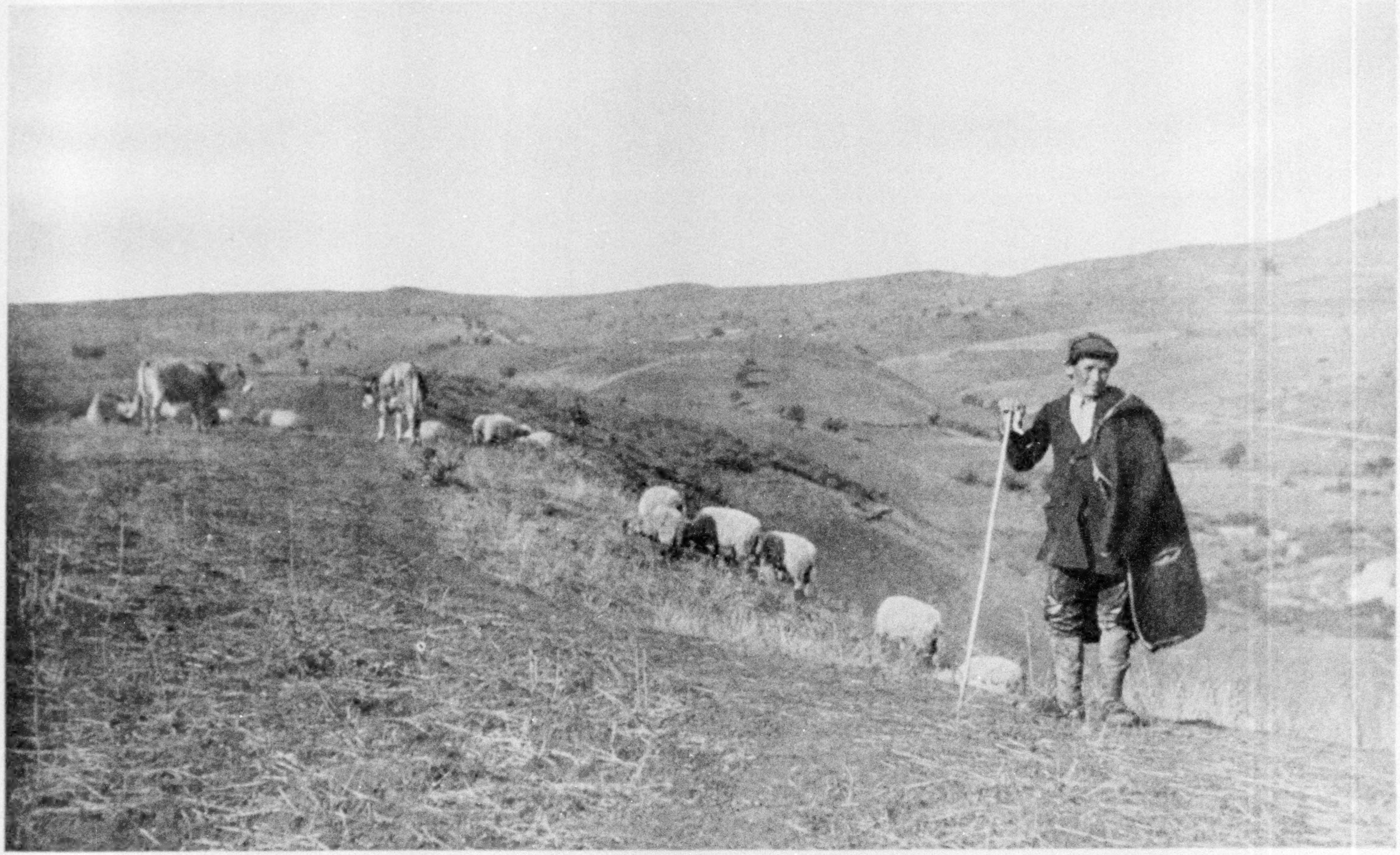
The music was provided by a sort of drum and flute, augmented by a low handclapping from a few elderly folk seated outside the circle of the dancers. This had been going on, I was told, for hours and would continue into the night. The gravity with which it was conducted was striking.

Leaving the dancers and keeping along the dusty road, we soon arrived at the Hotel of Pythian Apollo, which afforded an agreeable contrast to most of the hotels outside of Athens, being clean, neat, and simple, and with an excellent cook. For this latter my indifference is known to be Gallio-like, but I had to think of my friends!

We were off to bed shortly after dinner, as our exploration was to begin at an early hour. I had foreseen a profound sleep, but the Oracle, doubtless resenting the presence of moderns near her sanctuary, picked out several choice dreams with which to haunt my slumber. These were not of an entirely disagreeable nature. In one of them the Oracle, sitting at the foot of my bed and with features strikingly suggestive of those of my colored mammy—dead 30 years syne—foretold a brilliant career for me.

As the Nubian in question had never while living predicted anything but the gallows as my reward, the wild improbability of such a thing coming from her lips was such a shock as to wake me up. In my second slumber I successfully strangled the Python and awoke with the bedpost firmly clutched in my hands and the warm sunshine flooding my room.

Delphi, to describe it geographically and exactly, is on the steep southern slopes of Mount Parnassus. The general view suggests the auditorium of a gigantic theater, set for a tragedy of Titans,



A SHEPHERD BOY TENDING HIS SHEEP AND CATTLE AMONG THE FOOTHILLS OF MT. PARNASSUS

Photograph by Fred Boissonnas

A SHEPHERD AND HIS FLOCK ON A DUSTY SPARTAN ROAD "great clouds like ushers leaning, Creation looking on" (see page 608).

The rock barrier to the north has been cleft by some convulsion of nature, and through this opening flow the waters of the Castalian spring, where pious pilgrims went through the ceremonial purification before proceeding to the sanctuary.

By the ancients this spot was considered the center of the world and was called "the navel of the earth." From remotest times Delphi, under the name of Pytho, was a place of pilgrimage. At a certain point in the side of the hill was an opening in the ground, from which from time to time noisome vapors arose. These were said to have the power to intoxicate bystanders.

A temple was built about this opening. Immediately over it was a golden tripod, on which sat a prophetic virgin, later a matron, whose words unintelligible, except to the initiated, were taken down and subsequently communicated, in hexameter verse, to the inquirers by the temple priests.

It will be recalled that the ambiguity of these utterances saved the reputation of the priests in doubtful cases. In the vestibule were carved the famous sayings of the seven sages: "Know thyself" and "Nothing too much."

IMMENSE TREASURE WAS DEPOSITED IN THE TEMPLE

The treasure contained in the temple must have been immense; for, apart from the rich offerings presented to it by kings and private individuals, many of the Greek states made it the depositary of their most valuable possessions.

The remains seen to-day are those of the structure erected in the fourth century B. C. Earthquakes and floods and the hand of man have done their worst, until there is now but little left of what must have been a structure of unusual beauty in a land of wonderful buildings (see illustration, page 588).

On every side are seen, in varying degrees of preservation, temples and treasuries exemplifying a variety of Greek architecture; these were either offerings or served as treasure-houses of various Greek states.

One of the most charming of the latter is the familiar Treasury of the Athenians, which is a small Doric structure said to have been erected with the booty captured at Marathon.

Not far distant stands the Stoa of the Athenians. Along its walls are carved inscriptions dedicating certain slaves to the service of Apollo. This was a Greek method of emancipating slaves, since one dedicated to the service of the god became his own earthly master.

The theater at Delphi is still in an excellent state of preservation. From the seats one commands a view across and up the valley. Far below lies the road over which the pilgrims passed. The acoustics, as is usual with ancient Greek structures, are almost perfect, and the effect of Keats' Ode, though said here in an alien tongue, had rare potency and charm.

DELPHI BY MOONLIGHT

We climbed still higher in the warm sunshine, up to the stadium. Within, the course was carpeted with poppies and there was a buzz of bees in the noonday air. Above us eagles were moving in strong, level flight.

We had brought our lunch and sat down on the green carpet to eat our meal, being careful first to pour a libation to the gods. Our archeological friend laughed as we did this, and pointed to an inscription dating back more than 2,500 years, which forbade the bringing of wine into the inclosure.

The rest of the afternoon was spent wandering at random and alone over the hillside. Night fell upon us gathered once more around the table.

After dinner, since it was moonlight, we visited the Castalian spring and climbed again to the temple and to the theater.

Wisps of cloud began trailing in delicate veils across the face of the moon; earthy smells mounted to us from the valley, now hidden in shadow; a chill wind swept down the pass and the countryside seemed to be repeopled with forms of other days—the lowly and the proud, the rich, the powerful, the weak, the poor, emperor and clown—swinging in an endless procession through a thousand years, to ask of the Oracle the question that has puzzled the heart and brain of man since the world began.

SAILING THE SEVEN SEAS IN THE INTEREST OF SCIENCE

Adventures Through 157,000 Miles of Storm and Calm, from Arctic to Antarctic and Around the World, in the Non-magnetic Yacht "Carnegie"

By J. P. Ault

Commander of the "Carnegie"

The average man who has been wandering about over the face of the globe is always glad to return to his own home land.

The Icelander born and raised in Reykjavik, after living for a few years in Winnipeg, Canada, returns to Reykjavik, as he says it was too cold for him in Winnipeg. This seems to us to be imaginary until we learn that the temperature rarely goes below 10 degrees above zero Fahrenheit at Reykjavik.

The South Sea Islander, after a brief sojourn in the United States, returns to his island home, as the rush and strife of civilization were too confusing for him.

Even the Eskimo, who faces a continuous struggle to survive in the frozen north, would not trade places with the Samoan, whose life of ease is fabled in song and story and who faces an existence characterized by Stevenson as "one long, unbroken uniformity of days."

On the other hand, the man who has traveled is always the envy of him who has had to remain at home; and so we are never content. To this spirit of discontent, this refusal to ignore the challenge of the Earth's wide spaces, of her untraveled latitudes, we owe our present knowledge of the world's geography.

In visiting the remote corners of the world our first impression reveals how little we really know beforehand of these places and of their people. And the people who dwell in those distant places know, perhaps, less of us and of our country. The American "movie" has done much to enlighten them about certain of our habits and customs, but the net result has been that every American is considered to be wealthy.

The prospect of taking an automobile sight-seeing trip over the lava fields of Iceland had never been suggested to our imagination. The American peanut was as unfamiliar to the people of Hammerfest, Norway, as is the mangosteen of India to us. At first they tried to eat the shell and all.

PURPOSE OF THE "CARNEGIE" CRUISES

To increase our knowledge of the constitution of the Earth's magnetic field and to learn more of the amount and variation of the electricity in the atmosphere surrounding the Earth, the non-magnetic vessel, the yacht *Carnegie,* has been making her cruises since 1909.

Carrying out the idea of the Director, Dr. Louis A. Bauer, the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, in 1905 began making a general magnetic survey of the globe, both on land and at sea.

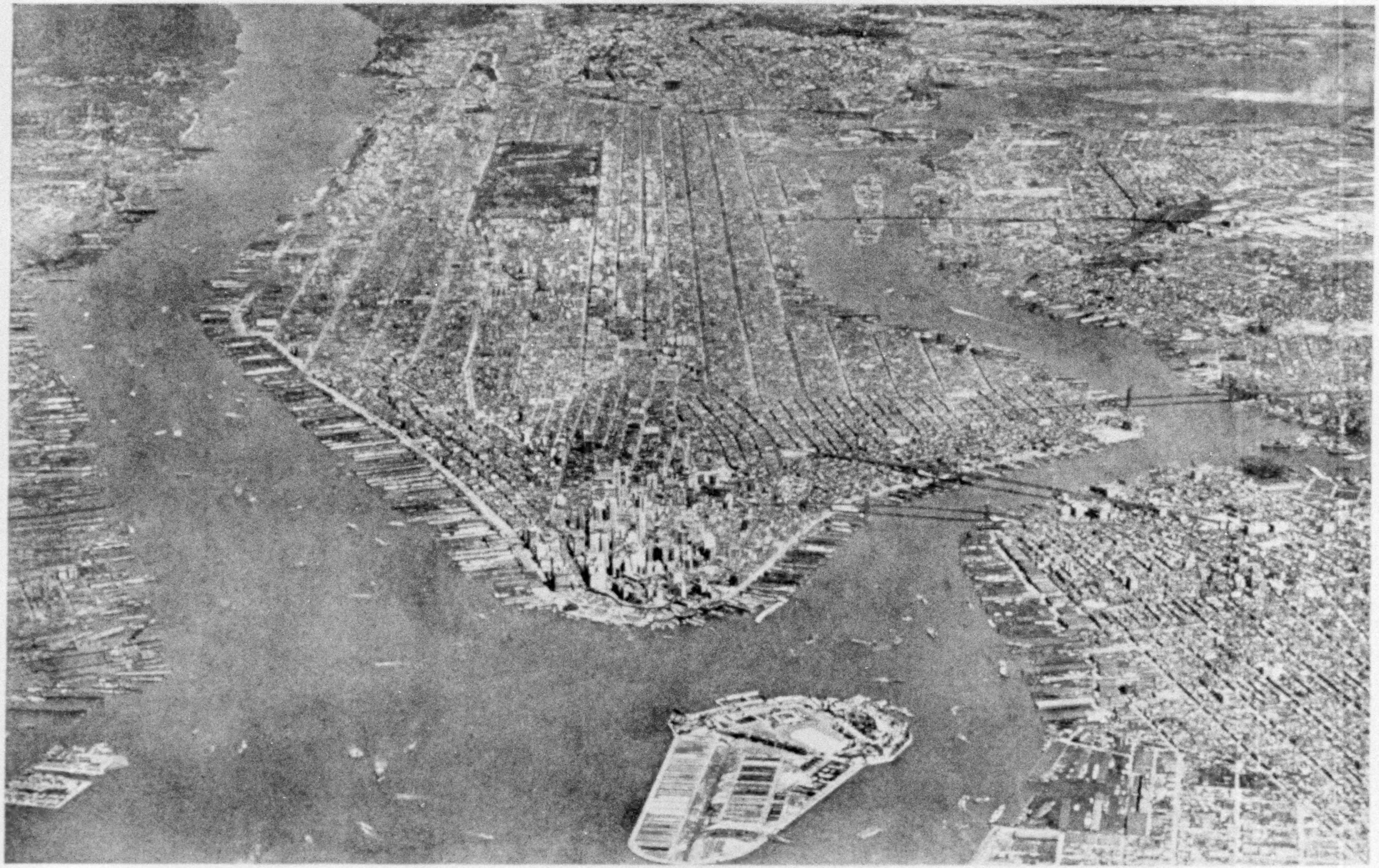
In the course of the ocean work a great many interesting places have been visited during the three cruises of the *Galilee,* 1905 to 1908, the first vessel used by us in making a survey of the Pacific Ocean, covering 73,508 statute miles, and during the six cruises of the *Carnegie,* 1909 to 1921, covering 291,595 statute miles.

This article is concerned only with the *Carnegie* cruises III, IV, and VI, which are shown on the accompanying track chart (see page 634).

To relieve the tedium of chronicle, these three cruises will be outlined briefly, thus serving to orient the reader properly as to time and place. Cruise III, covering 11,009 miles, began at New York in June, 1914, and ended at the same place in October of the same year, calls being made at Hammerfest, Norway, and at Reykjavik, Iceland.

Cruise IV, covering 73,009 miles, began at New York in March, 1915, and

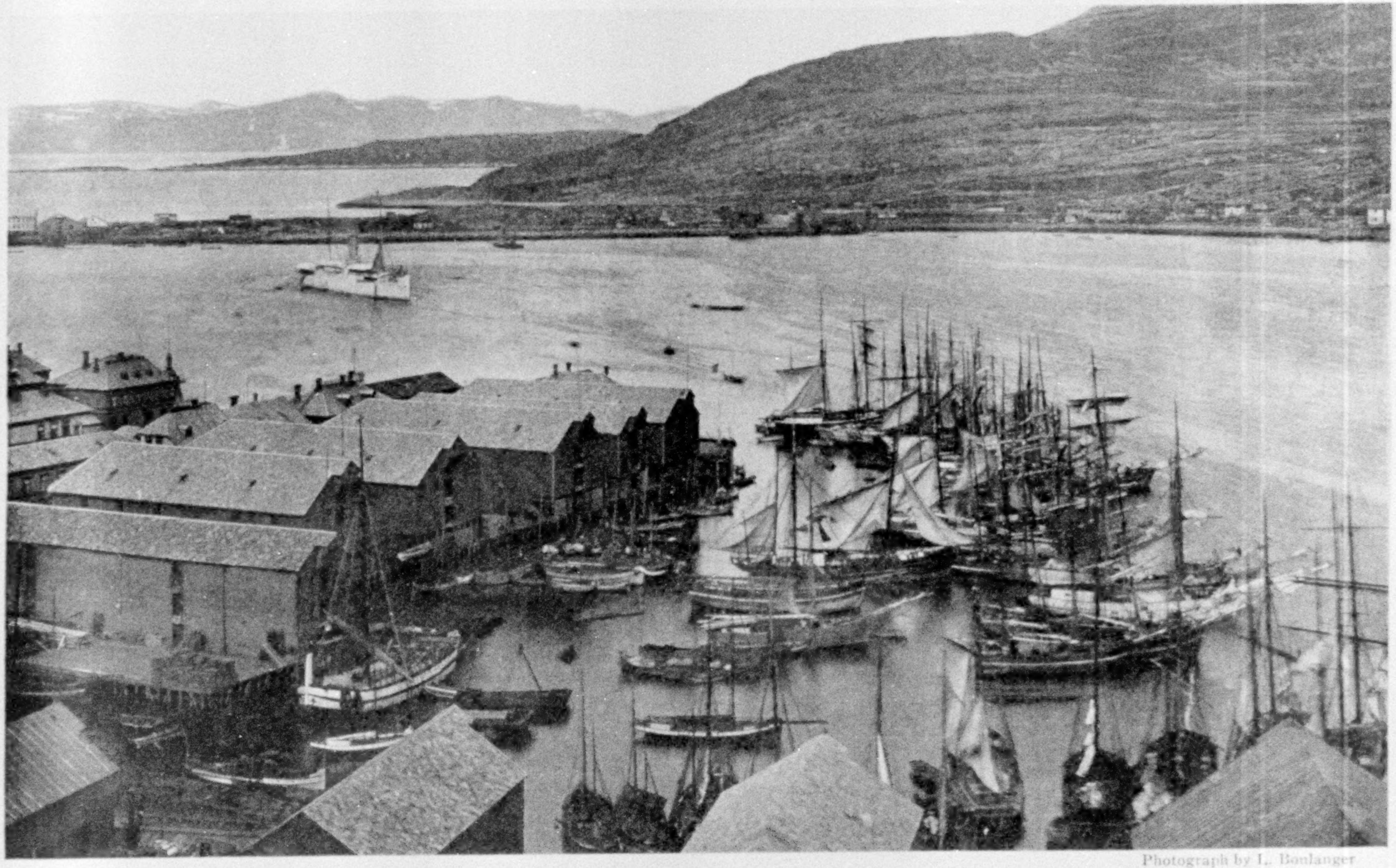
XUM



© Fairchild Aerial Camera Corp.

STARTING POINT FOR THE "CARNEGIE'S" CRUISE TO THE FAR NORTH

Manhattan Island and the New York, Brooklyn, and Jersey City waterfronts as seen from the air. In the middle foreground is Governors Island.

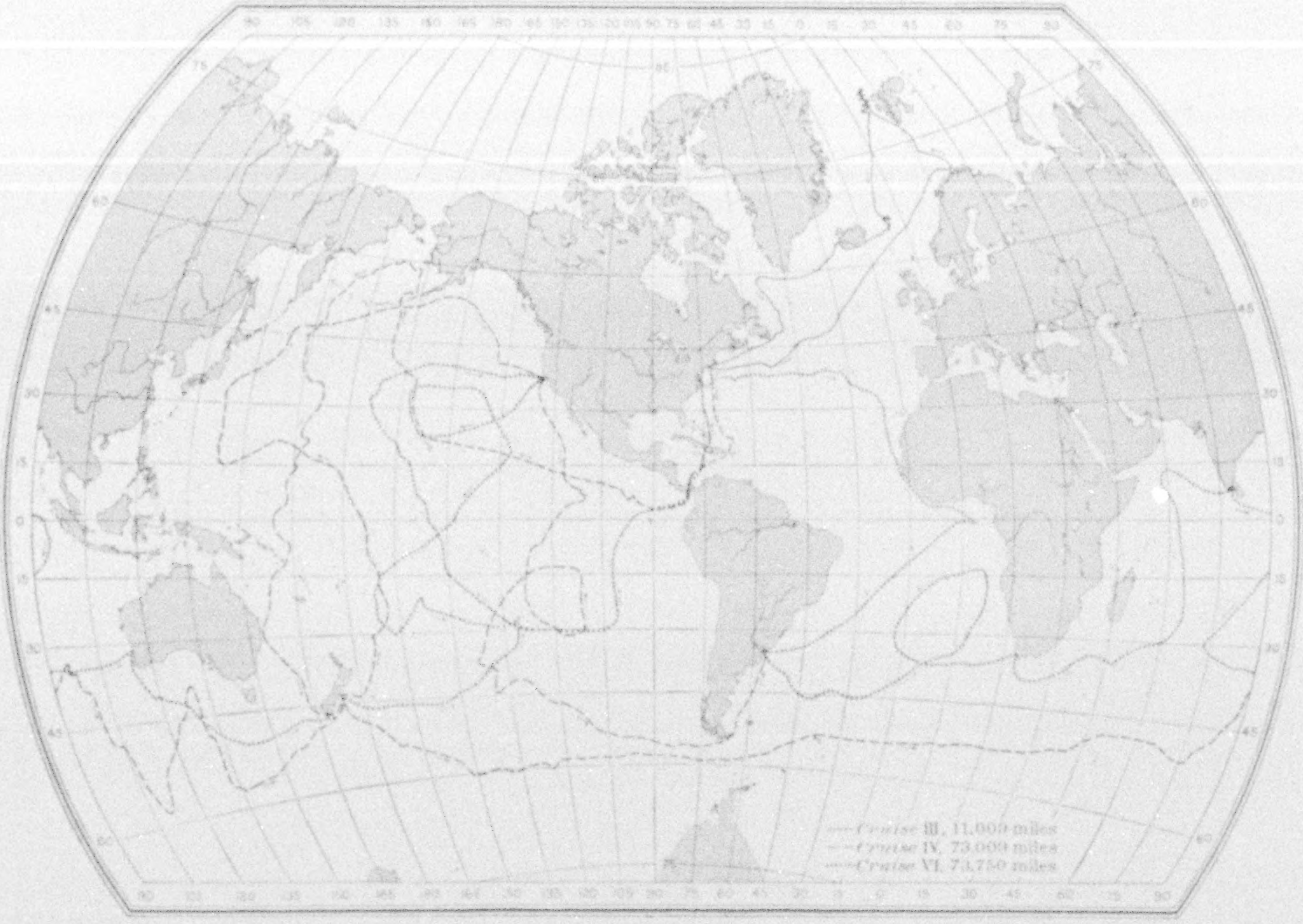


Photograph by L. Boulanger

THE HARBOR OF HAMMERFEST, NORWAY, MOST NORTHERLY CITY OF EUROPE

This was the first port of call for the *Carnegie* after leaving New York, a distance of more than 4,000 miles, covered in 24 days. The harbor of Hammerfest presents an animated picture in summer, when fisher-craft throng its waters.

XUM



Drawn by A. H. Bumstead

A CHART SHOWING THE ROUTES TRAVERSED BY THE "CARNEGIE" DURING THREE VOYAGES, COVERING 157,000 MILES

This outline chart is drawn on the same copyright projection as that used for the National Geographic Society's new Map of the World, which is issued as a supplement with this number of THE GEOGRAPHIC (see text, page 690).

ended at Buenos Aires, Argentina, in April, 1917, the route being mainly in the Pacific Ocean and including a circumnavigation of the globe in sub-Antarctic regions.

Cruise VI, covering 73,750 miles, began at Washington, D. C., in October, 1919, and ended at the same place in November, 1921, the vessel making a complete circumnavigation of the globe by way of the Atlantic Ocean, around the Cape of Good Hope, up through the Indian Ocean, and, after spending almost a year in the Pacific Ocean, home through the Panama Canal.

In this article the well-known places visited will be described only briefly, more details being given concerning those places about which very little has been written.*

Our stay at any one place rarely exceeded three or four weeks.

THE FIRST GLIMPSE OF THE MIDNIGHT SUN

Hammerfest, Norway, was the first port reached after leaving New York in June, 1914. The 4,152 miles between these ports were covered in 24 days, giving an average of 170 miles per day, the highest ever reached by the *Carnegie*.

We were in latitudes of continuous daylight from June 24 to August 13, the sun never disappearing below the horizon, but frequently being obscured by cloud or fog, making navigation somewhat difficult and dangerous as we crossed the iceberg region off Newfoundland.

When we arrived off the entrance to Sörö Sund, ready to make port and sail up to Hammerfest, we encountered a heavy gale and were tossed about by mountainous seas, beginning a habit which

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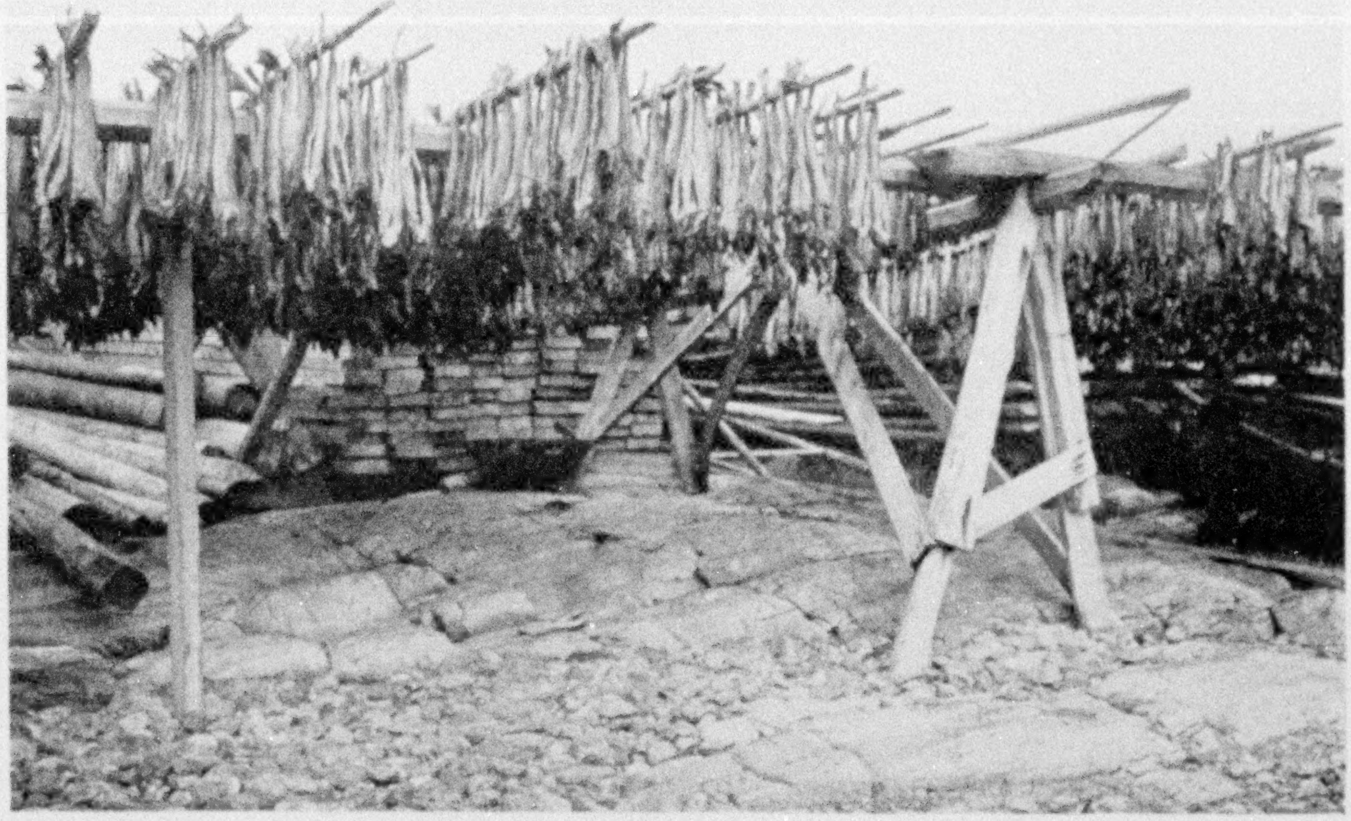
* The reader will find the National Geographic Society's new Map of the World, issued as a supplement to this number of the Magazine, invaluable in following the itinerary of the *Carnegie* as described by the author.



Photograph by L. Boulanger

CODFISH-DRYING RACKS AT HAMMERFEST, NORWAY

There is no sunset in Hammerfest from May 13 to July 29. This is, therefore, the busiest season of the year, when fishing craft set out for fisheries as far away as Spitsbergen and the Kara Sea beyond Novaya Zemlya. The city's chief export trade is in cod-liver oil, salted fish, reindeer and fox skins, and eiderdown.

persisted throughout the cruises of the *Carnegie*.

Often when trying to make a landfall and enter port we would experience adverse winds or calms, and the winds usually would develop into storms or gales before we were allowed to enter the harbor.

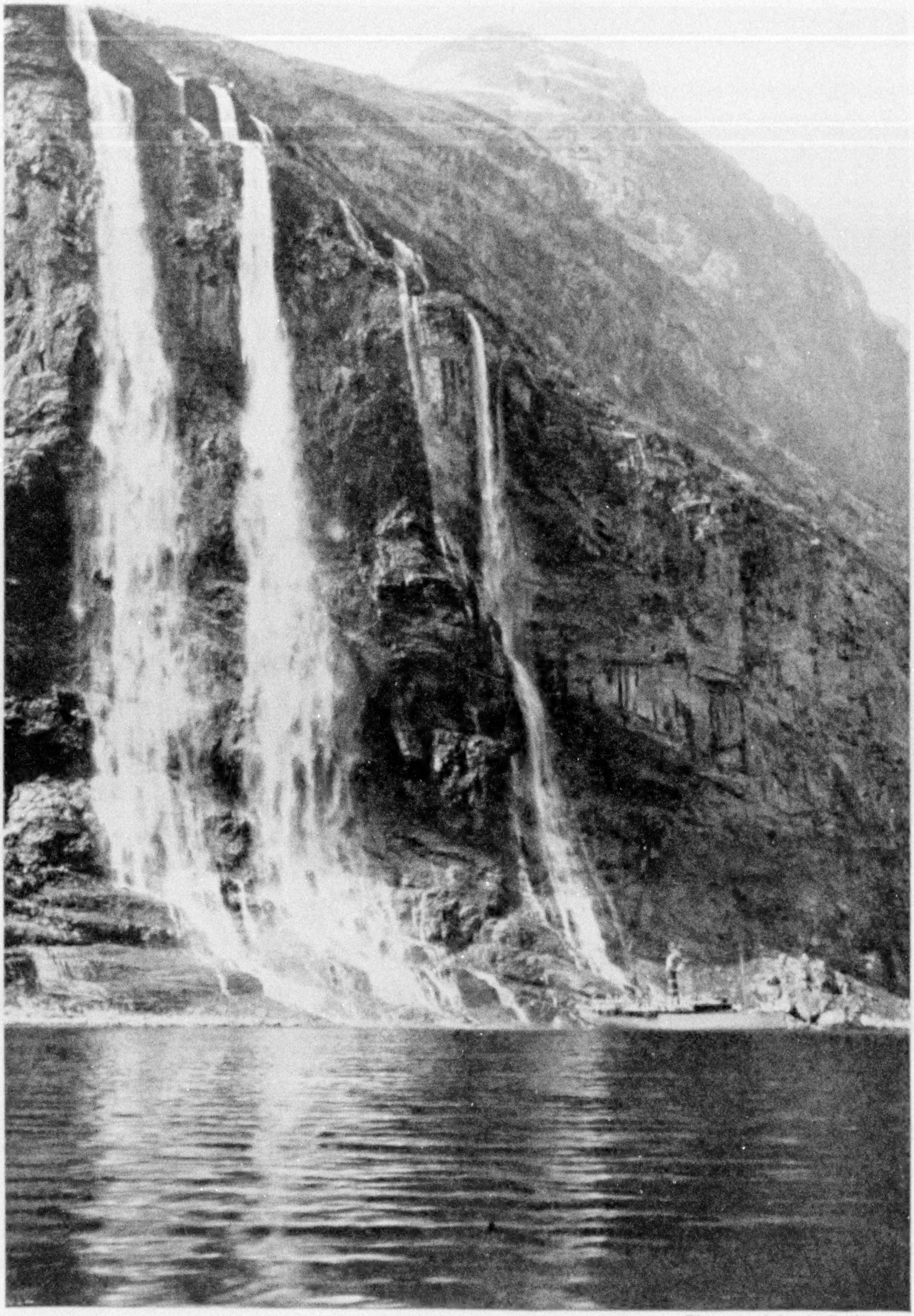
On a surprisingly large number of times we arrived off the port after nightfall. The *Carnegie* being primarily a sailing vessel, we could not specify the hour of our arrival.

After being "hove to" for 24 hours, we at last anchored off Hammerfest at 1 o'clock in the morning of July 3. We were ready to turn in and have a sleep, but the whole town seemed to be awake and ready to welcome us, and so our sleep had to be postponed.

The five-hour trip from the entrance of Sörö Sund to Hammerfest, through quiet waters, in the midst of snow-capped peaks, gave us some idea of the wonderful mountains and fjords for which Norway is famous. We had our first glimpse of the midnight sun as it swung around the northern horizon, just skimming the mountain tops.

Many vessels of all sizes and description were busy at fishing, the chief industry of Hammerfest. While riding at anchor in the harbor we early became aware of the presence of the many fish-drying places on shore, and our land stations later were selected with due regard for these locations, the "local disturbance" being reduced to a minimum at a distance of one mile to windward. We would see boats crossing the harbor loaded high with what seemed to be cordwood, but closer inspection showed the cargo to be dried fish stacked up on deck.

Warehouses were full of dried fish awaiting shipment, and many vessels were in the harbor loading fish for Russian ports. This was early in July, and already the hundred or more ships of the



Photograph by A. B. Wilse

THE SEVEN SISTERS, CELEBRATED WATERFALLS IN THE GEIRANGER FJORD, NORWAY

Fluttering in the breeze like long silken streamers, these gossamer waters often enshroud the carbon-black walls of the fjord. Usually only four falls are visible from below.

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sealing fleet had returned from their season's work in the north and were tied up in the harbor awaiting the return of another season.

Hammerfest, at about 72 degrees north latitude, is the most northerly city of Europe, and the winters are so long and cold that very little vegetation can survive. The people are very proud of the small group of birch trees growing in the valley back of the town, the only trees for miles around.

While wandering over the hills viewing the sun at midnight, we found numerous violets and other flowers growing among the rocks. The principal fuel is dried peat, which is burned in small stoves specially constructed for this purpose.

The houses are small frame buildings, often thatched with turf, and most of the homes have numerous indoor plants and flowers, which serve to cheer up the long winter months when the sun has disappeared or shines for only a few hours at a time.

A FINNISH BATH

At Hammerfest we enjoyed the unusual experience of a Finnish bath. One or two of the houses in town are specially constructed for this purpose.

Built into the wall in the bathroom is a stove made of large stones, which forms a homemade furnace. The fire in the stove heats the stones very hot, and when water is thrown upon them the room is soon filled with steam. As the bath progresses and the bathers, three or four being taken care of by one attendant, become warmed up, more and more water is thrown upon the hot stones.

A series of shelves in one end of the room enables the bather to increase the degree of heat by climbing up nearer and nearer the ceiling, until on the top shelf he may suffocate if he raises his head too high. Next he is scoured and scrubbed down with vegetable sponges and pounded with bundles of switches, which are wielded with no gentle hand, until he finally is ready to leave the steam-room.

Then, after several buckets of increasingly colder water have been thrown upon him, he is treated at last to a shower of ice-cold water direct from the glacier back of the village.

It was almost a "finish" bath.

Sailing from Hammerfest on July 25, we little dreamed of the war clouds which were already gathering over Europe. We were intending to sail eastward into the Kara Sea beyond Novaya Zemlya, but after rounding North Cape we were headed off by a northeast wind.

SPITSBERGEN, A LAND OF PERPETUAL SNOW AND ICE

As time was short, it was decided to push north as far as possible, up into the "Whaler's Bight," west of Spitsbergen, a triangular area with the small angle to the north, kept open for a few months during the summer by a branch of the warm North Atlantic Drift.

On July 30 we were becalmed in sight of Bear Island, and the next day we sighted our first ice. About two hours after sailing through a group of "growlers," or small detached icebergs, we met the solid pack which had drifted down out of Stor Fjord, around South Cape of Spitsbergen, and extended 30 miles westward. It was necessary to tack back to the south again for 10 miles to avoid this ice.

On returning again to the northward we cleared the pack and had great hopes of reaching 80 degrees north before the ice should compel a return. Sailing along the coast of Spitsbergen, with its lofty needle peaks clothed to the summit with a perpetual mantle of white, the 50-mile-wide valleys filled with glaciers flowing into the sea and blocking the bays and harbors with huge icebergs, was an impressive experience.

About 4 o'clock in the morning a southerly gale began to blow, threatening to force us into the solid polar ice pack or to block our return to the south.

Visions of being compelled to winter in this desolate place with our limited supplies and light equipment began to stare us in the face. We realized our danger and at once turned about and began our five-days' struggle to force our way southward against the teeth of the gale.

We had reached within sight of 80 degrees north, within 600 miles of the North Pole, just off Danes Island, the island from which Andrée started on his ill-fated balloon expedition across the North Pole in 1897.

With our engine running and fore-and-

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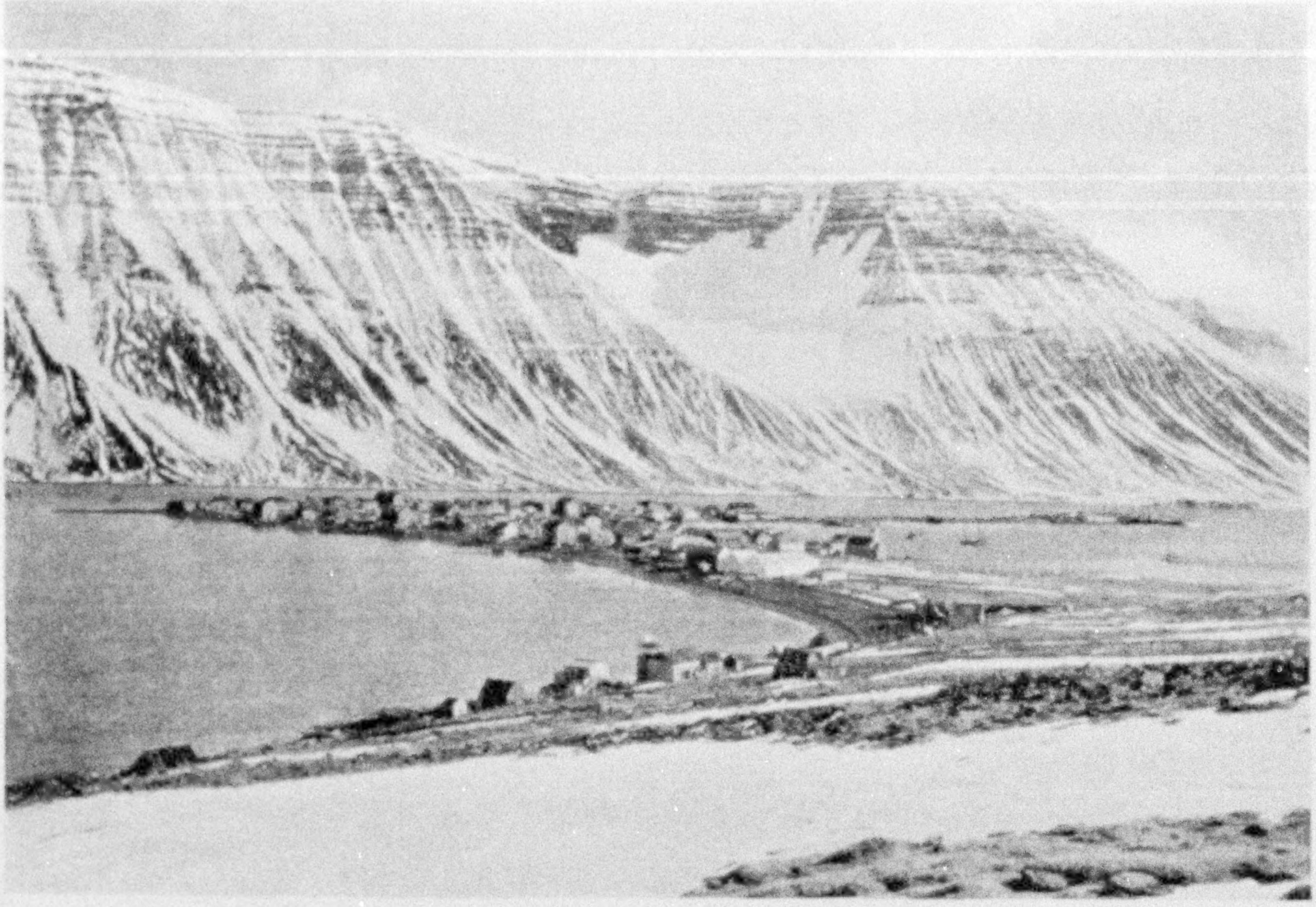
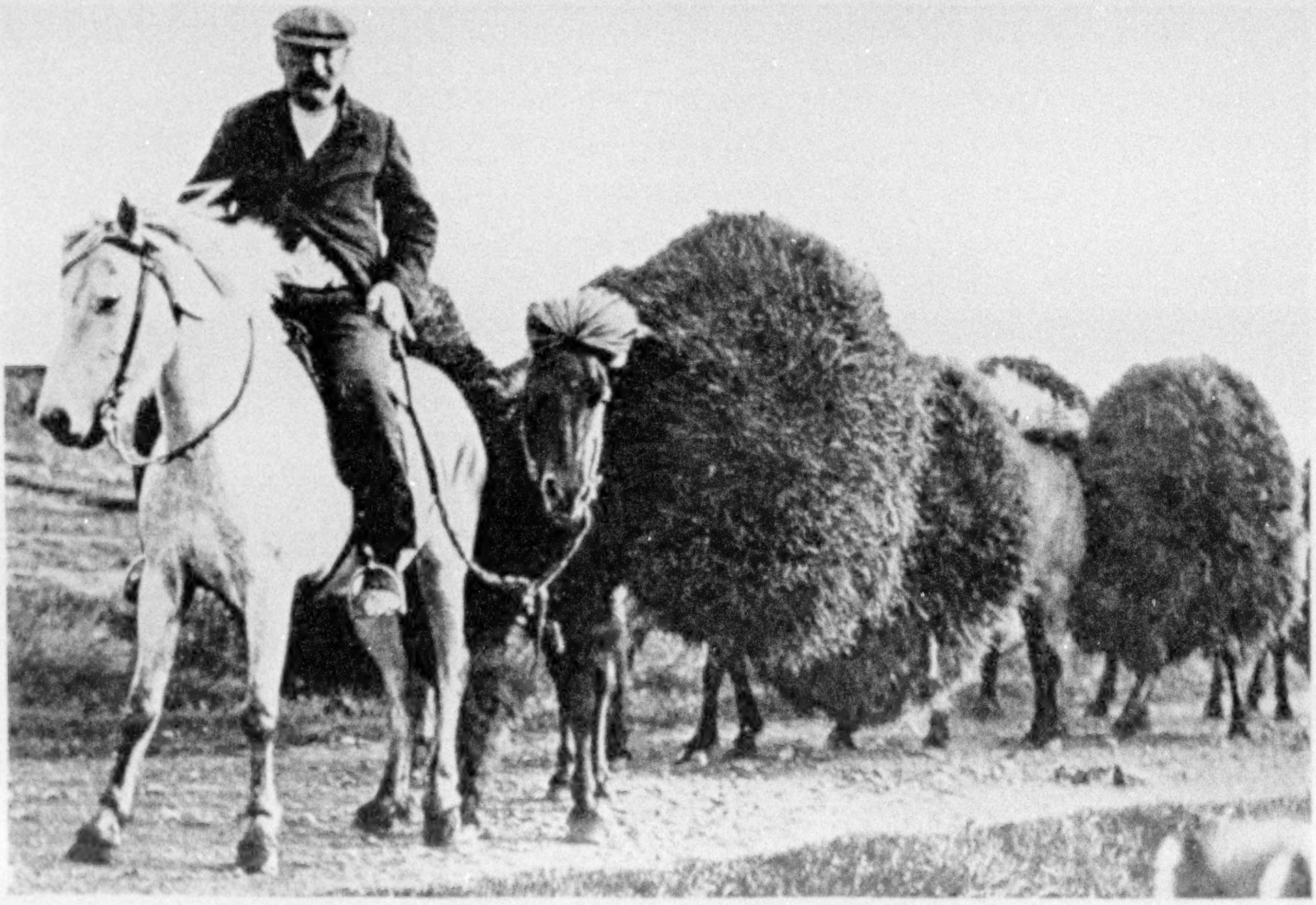


Photograph by Magnus Olafsson

ISAFJÖRDUR, ON THE NORTH COAST OF ICELAND

This, one of the more progressive cities of Iceland, has a population of 1,854. It is a typical fishing and trading town and owns a fleet of motor fishing-boats.



Photograph from The American-Scandinavian Review

CARRYING HOME THE HAY

These figures are not giant porcupines; they are Icelandic horses, each carrying two bundles of hay weighing from 175 to 200 pounds.

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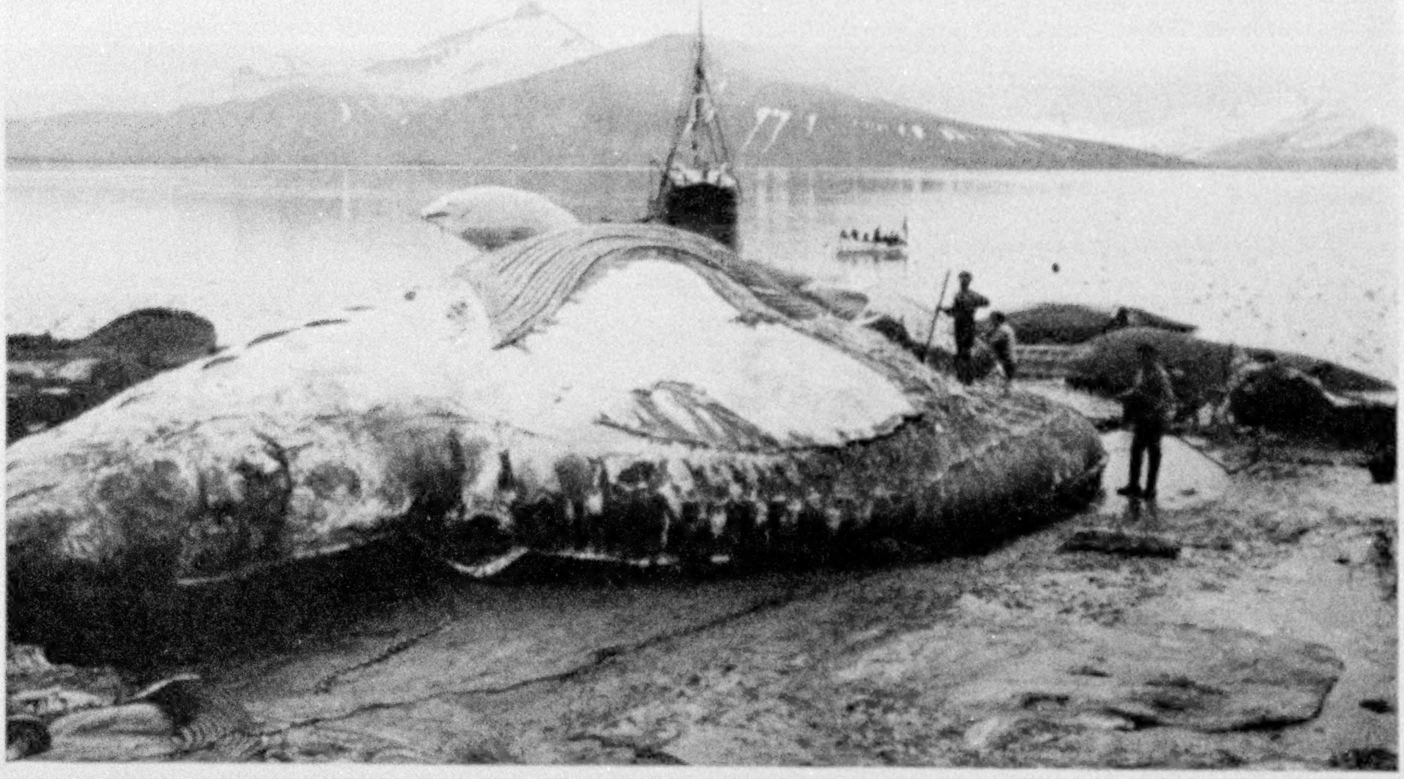


Photograph from A. B. Wilse

CUTTING A HUGE WHALE AT A SHORE STATION IN THE FAR NORTH

The cutters, or "flensers," make longitudinal incisions in the blubber of the whale, and then peel it off like the skin from an orange. When the "blanket pieces," as the blubber strips are called, have been torn from the carcass, they are cut into blocks, dumped into enormous vats, and boiled, or "tried out," for oil.

aft sails set, we were able to make slow headway south, while tacking back and forth 12 times off the coast of Spitsbergen. We had occasional glimpses of Queen Maud Glacier, 50 miles in width, of Magdalena Bay, with its imprisoned icebergs, and of Prince Charles Foreland, as from time to time we would emerge from the fog and cloud of the storm into the clear skies along the coast during our struggle out of the grip of the Arctic.

During the first 24 hours of the storm we were able to make only 30 miles to the southward, but each mile gained meant that much additional safety. The gale finally surrendered and, the wind shifting to the westward, we proceeded toward Iceland, sighting Jan Mayen on the way, glad to be safely out of that dangerous region.

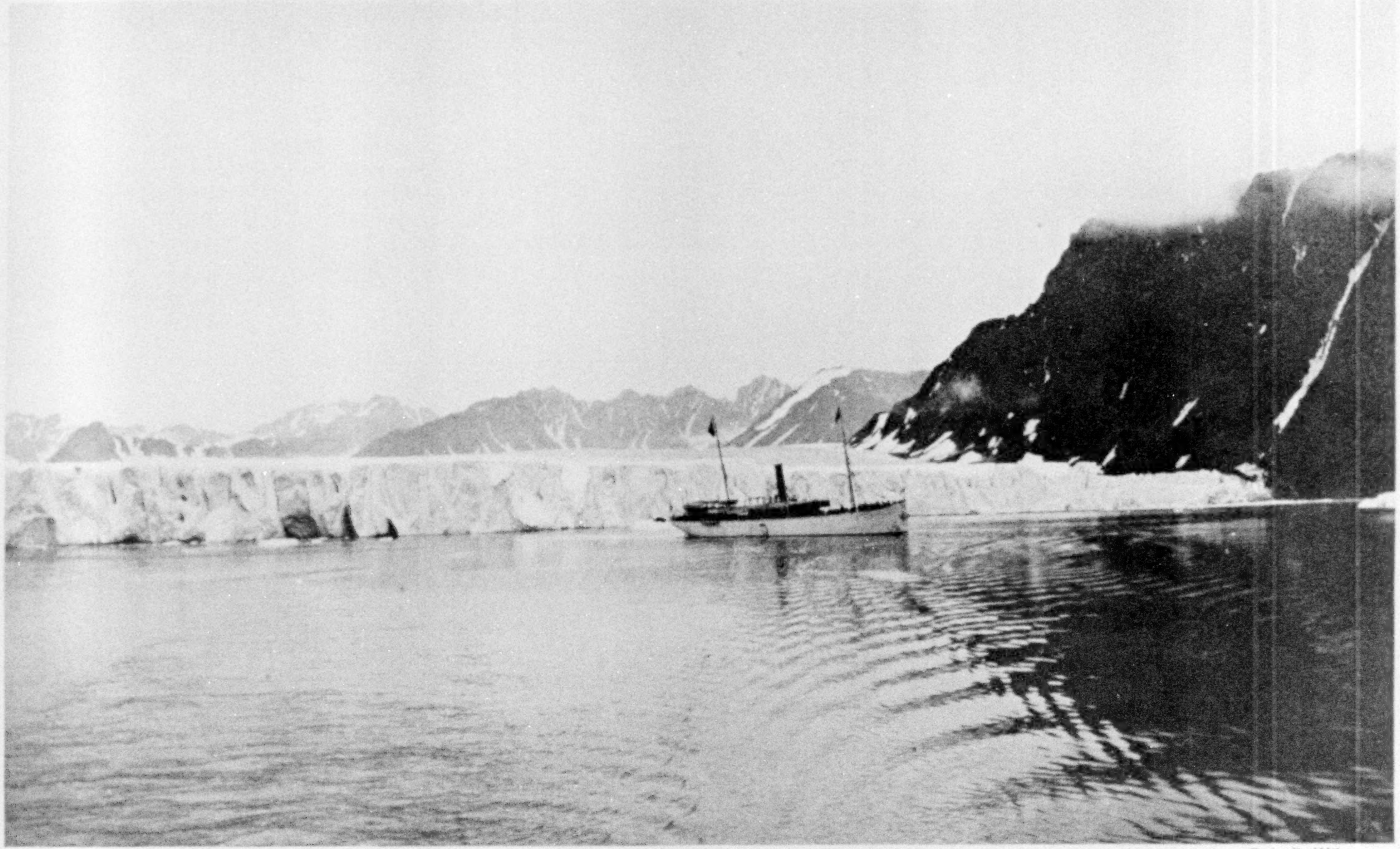
At Reykjavik, the capital of Iceland, the pilot met us with our first news of the war—all Europe in a turmoil and the Germans within a few miles of Paris!

Our amazement can readily be imagined, and our interest in Iceland, with its huge glaciers, its immense lava fields, and its peculiar climatic conditions, became secondary to our interest in the daily cabled news from Europe.

ICELAND, THE LAND OF THE SAGAS, THE OLDEST LITERATURE OF EUROPE

The southern shores of the island are bathed by the warm waters of a branch of the North Atlantic Drift, and the northern shores are infested with icebergs borne on the cold waters of the Greenland Current. A meeting of these two extreme conditions creates continuous atmospheric disturbances. Wind and rain, storms and gales, were almost incessant during our stay.

The harbor of Reykjavik is noted for unusual local magnetic disturbances, and



© A. B. Wilse

IN CROSS BAY, AT THE BASE OF ONE OF SPITSBERGEN'S GREATEST GLACIERS

Lilliehöök Glacier's ice wall rises from 50 to 100 feet above the water.

the compass cannot be relied upon while entering the port. On shore the magnetic declination changed two degrees in 80 paces, and the value on one shore differed by 15 degrees from the value on the other shore, three miles distant.

Of 90,000 people in Iceland, 12,000 live in Reykjavik, the capital city.

Farming and fishing are the chief industries, and we often saw halibut weighing 300 to 400 pounds being brought to market. The haddock and the fresh-water salmon were excellent. Vessels at anchor in the harbor were filling their holds with fresh fish, alternating with layers of salt, and when loaded, were sailing for northern Russian shores.

PROHIBITION IN ICELAND

The government of Iceland was forced by the war to charter a vessel and send to the United States for food, perhaps the first time a vessel from this island had visited our shores since the days of the old Norsemen. Prohibition was to go into effect October 1, 1914, thus pointing the way for other nations.

Forty-seven thousand Shetland ponies are raised, chiefly for export, and the sheep number about 900,000. During the short summer season many vegetables can be raised, but the potatoes grow only to the size of walnuts. The grass is usually cut by hand because it is so short, and the whole family takes part in the haying process. The hay is brought to market by ponies, the chief method of transportation on the island, each pony carrying two huge bundles. Thus the crop is estimated at so many pony-loads (see p. 638).

Iceland is the Land of the Sagas, the oldest literature of Europe, of which Sir Rider Haggard says: "Too ample, too prolix, too crowded with detail, they cannot vie in art with the epics of Greece; but in their pictures of life, simple and heroic, they fall beneath no literature in the world, save the Iliad and the Odyssey alone."

The language in use to-day is the same as the ancient language used among all Scandinavian countries, the Icelanders alone having preserved it, chiefly due to the remoteness of their island.

Since December 1, 1918, Iceland has been recognized as an independent state, united with Denmark only through the identity of the sovereign. The island is about 310 miles long from east to west and 190 miles wide from north to south, with an area of 40,000 square miles.

More than one-eighth of the island is covered with glaciers, and an equal area is covered with old lava fields. An automobile trip over one of these fields of desolation showed a picture of destruction difficult to describe, and the continuous wind and rain of the day gave an added touch of gloom to the scene.

At the small country villages where we stopped the meals were excellent. Our hosts were very apologetic for being unable to give us what they thought we would like to eat; so we were constrained to assure them that the tinned food which was a luxury to them, and to which we were more than accustomed, could very well be omitted in favor of their fresh chicken, excellent haddock, and fresh-water salmon.

We called on the pastor of a quaint little country church on the way, and the exchange of points of view was mutually refreshing.

In Iceland, as in Norway, many plants and flowers are grown indoors, and some especially large geranium blooms were seen.

We were glad to sail for New York out of the stormiest harbor we had ever visited. Gales were of frequent occurrence, and one night the vessel dragged the one anchor that was down and was almost ashore before the other anchor could be let go. Even on the day we sailed a gale was blowing, and we were compelled to ask one of the steamers in the harbor to tow us out, as our engine was not powerful enough to drive the vessel against the heavy wind.

FROM NEW YORK IN A BLIZZARD TO THE TROPICAL HEAT OF PANAMA

We started on Cruise IV from New York in a blizzard, March 6, 1915. Within one week we were in the tropics and wishing for cool weather. During one of the heaviest gales, off Cape Hatteras, about 4 o'clock on a dark, stormy morning, the cook decided to try the great adventure and jumped overboard. A life buoy was thrown into the water, and the vessel was hove to, but the heavy seas running prevented launching the boat.

Photograph by J. P. Ault

THE "CARNEGIE" IS "HOVE TO" IN A HEAVY SEA

The huge waves pile up, but the smoking crests are flattened and scattered by the force of the wind.

We finally had to go on our way without seeing the cook again.

The *Carnegie* passed through the Panama Canal early in April, 1915, just before a landslide in Gaillard Cut stopped all traffic for several months.

THROUGH SEAS TEEMING WITH BARNACLES, FLYING FISH, AND BONITO

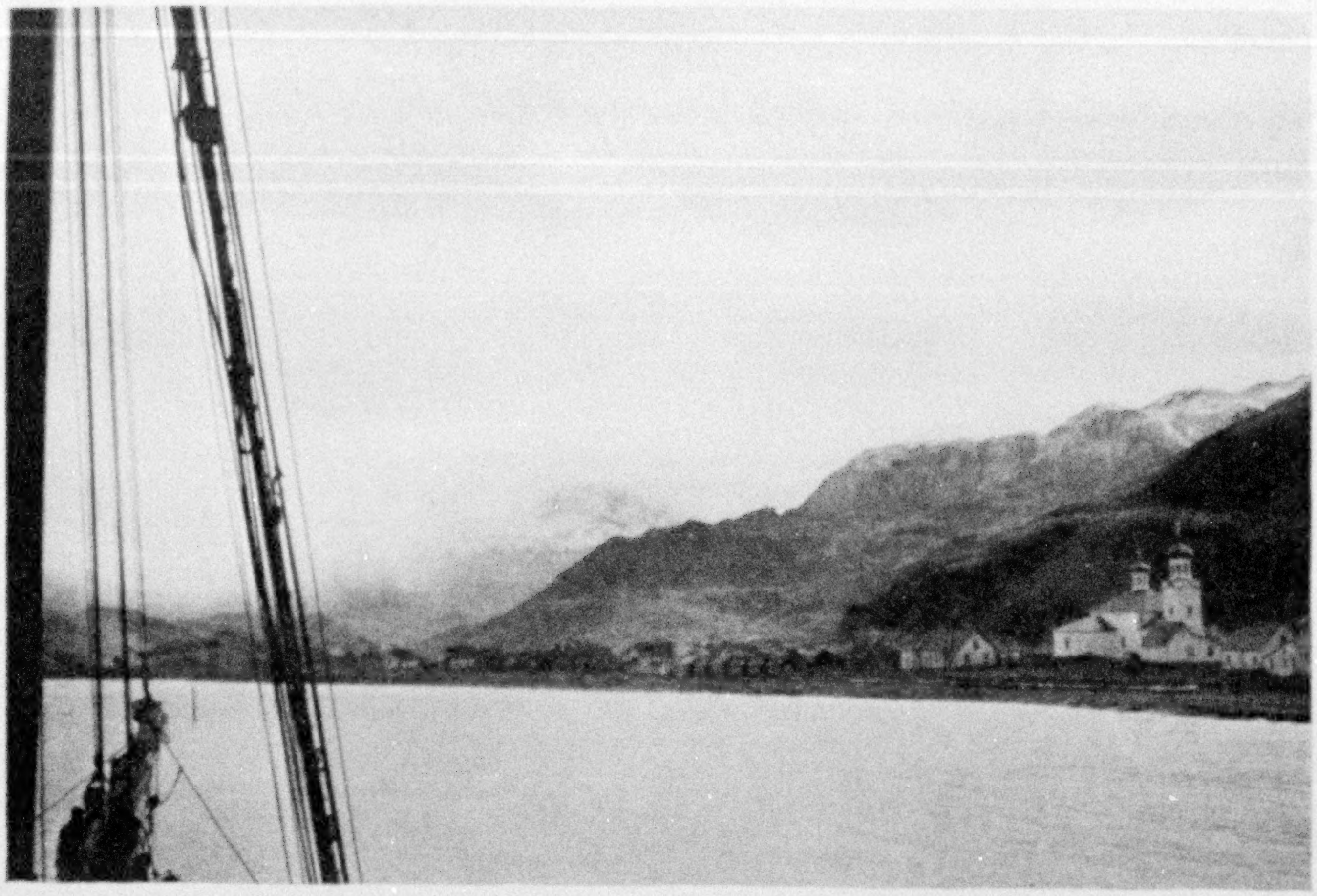
In the middle of the North Pacific Ocean, while en route for Dutch Harbor, for four days the vessel was passing through fields of barnacle clusters, extending as far as the eye could see in all directions. The tiny barnacles attach themselves to the small floating organism called the velella, a relative of the Portuguese man-of-war, and gradually grow and envelop it until a large cluster nearly 12 inches in diameter results.

After passing through these barnacle clusters, we were for several days passing through similar immense numbers of the velella. Occasionally, during calms, sharks, some of them 11 feet in length, were caught, and the small, brightly colored pilot-fish, which usually swam a little in advance of and directly above the shark's head, would dart wildly here and there trying to find its lost companion.

The flights of flying fish provide interesting material for study and speculation. These fish range in size from a few inches to nearly two feet in length, and the wing shape and size are quite varied. Some cannot maintain flight beyond the distance which their momentum gives them; others continue by dropping the tail into the water and giving it a few quick twists, while others continue flight for some time, changing direction and going much farther than momentum would carry them. The actual vibration of the wing fins has been seen frequently by several observers.

Often we have seen the bonito, or Spanish mackerel, pursue and seize the flying fish even in mid-air, and again some fish would escape its enemy below the water only to be picked out of the air by the gannet-bird swooping down from above.

Occasionally schools of porpoises visited the vessel, playing about the bow



Photograph by Capt. C. T. Pedersen

LEAVING THE VILLAGE OF UNALASKA, ALEUTIAN ISLANDS

The Russian church is seen at the right—a reminder of the days when Alaska was a possession of the Tsars.

darting ahead to show their speed, or flinging themselves high in the air and turning veritable somersaults in the abandon of play.

At other times schools of Spanish mackerel were encountered, and a dozen or more 6-pound fish have been caught in a few minutes by dipping a hook into the water under the jib boom.

Some bright metal object or a white rag must be tied to the hook to resemble a flying fish to attract the mackerel, and at times three or four of them rush at the hook at the same time. This fish is a welcome change from the usual canned meat diet which is our daily portion at sea.

Upon one occasion a large fish resembling a horse mackerel accompanied the vessel for days, sometimes leading the way and at other times keeping abreast of the stern of the ship. All night long his position could be determined by his brilliantly lighted phosphorescent trail.

Dutch Harbor was a port of call for steamers en route to and from the north during the Klondike rush, but is now almost deserted in favor of Unalaska, a small town across the island and inlet to the south. A herd of reindeer is still maintained on the island as a reserve food supply in case of need.

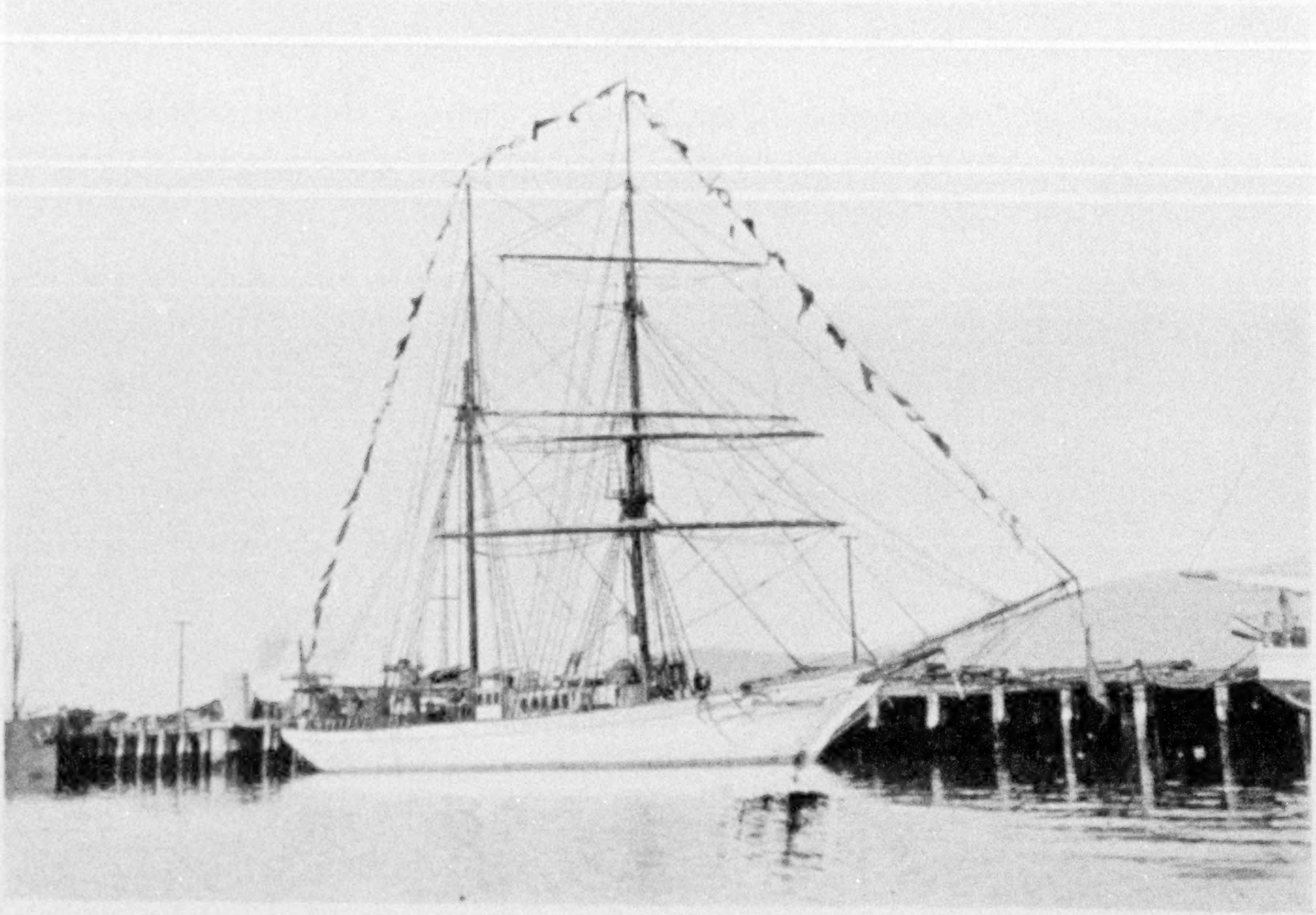
Mountains seem to have been dumped in profusion all over the surrounding landscape.

IN AN ARCHIPELAGO OF VOLCANIC PEAKS

The Bogoslof Islands (north of Unalaska) were sighted at midnight, shortly before we reached Dutch Harbor. These islands have changed shape frequently, due to volcanic action, peak after peak appearing in successive seismic disturbances, only to be blown up and disappear in a later eruption.

The roundabout route to Lyttelton, New Zealand, extended up through the Bering Sea, "for ne'er can sailor salty be until he sail the Bering Sea," past the Pribilof Islands, famed for their seal rookeries, and south through the pass west of Attu Island, the westernmost of the Aleutian group.

During the 89 days of this trip all kinds of wind and weather were experienced, and for the first 75 days not a sail was seen.



Photograph by J. P. Ault

THE "CARNEGIE" AT LYTTELTON, NEW ZEALAND, DRESSED IN HONOR OF ANZAC DAY

When off Wake Island we were running before a hurricane for 20 hours at 11 miles per hour under bare poles, with not a sail set. The force of the wind drove the rain through every crack and crevice of the ship, and everything and everybody on board was wet through. Fortunately we had a clear path and no company.

After the storm we avoided being wrecked on Wake Island one dark night only by keeping a sharp lookout, or rather by keeping our ears open and hearing the roar of the surf on the beach when only one-half mile offshore, no land being visible. By immediately changing our course 90 degrees we sailed out of danger.

Many a ship has come to grief on the gleaming white coral beach of the myriad low-lying islands, reefs, and atolls which dot the South Pacific Ocean. Numbers of these coral atolls are no higher than ten feet, making them invisible except at short distances. The regular winds are usually interrupted or die out altogether in their vicinity, making navigation difficult and dangerous.

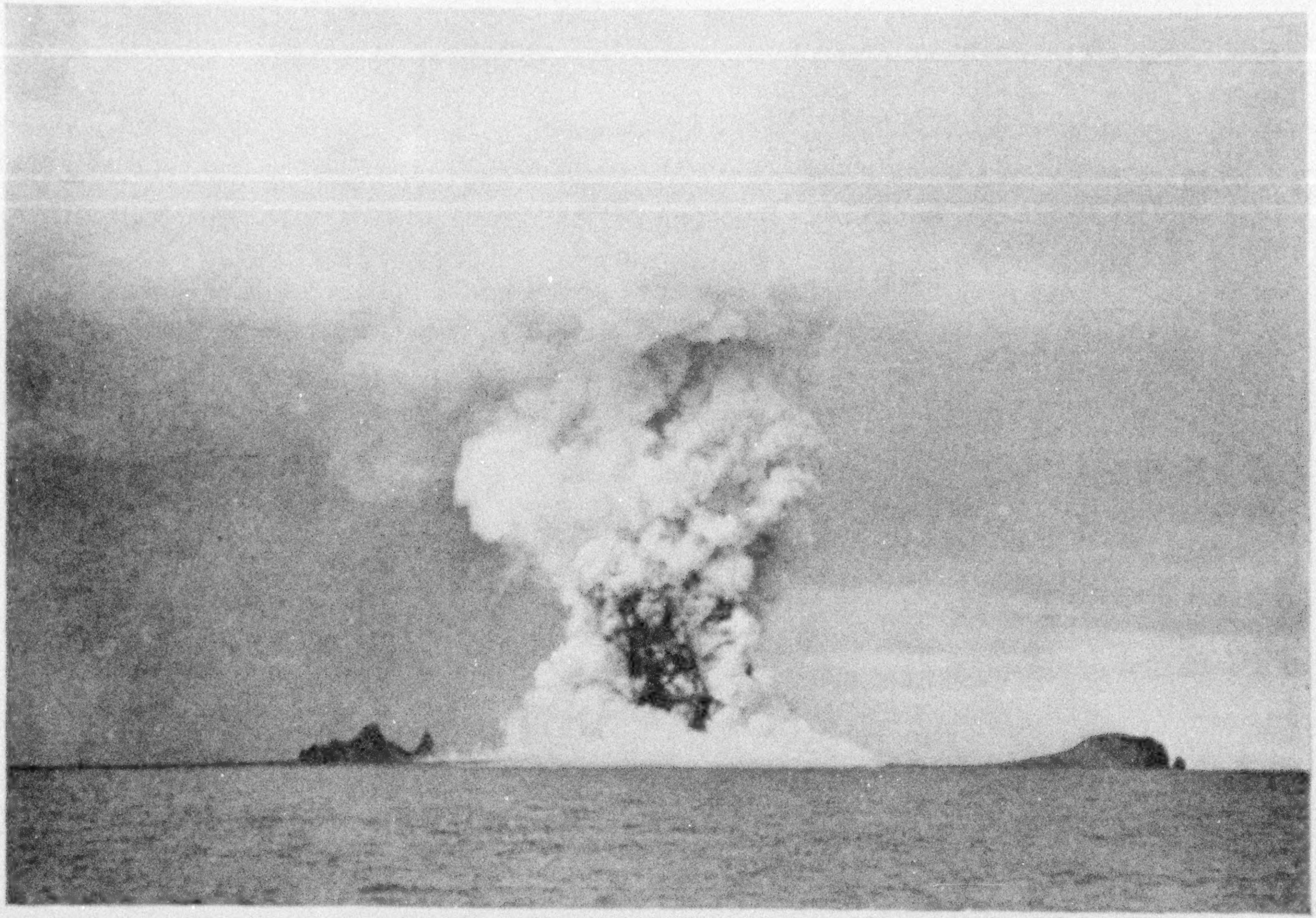
At times there has seemed to be a perversity in the elements when we were approaching some of these dangerous islands, the wind shifting gradually as we advanced, as if determined to force us upon the shore. The heat radiating from the land areas causes upward currents of air in their vicinity, thus disturbing the regularity of the winds.

So we sauntered on down the latitudes toward New Zealand, diving through the Marshall Islands, skirting the Solomon group, and dodging the Indispensable Reefs, marked only by a white line of breakers in the midst of the sea, with one small rock showing above the surface.

LYTTELTON, THE GATEWAY TO THE ANTARCTIC

Lyttelton (the seaport for Christchurch), situated at the gateway to the Antarctic, has been the last port of call for nearly all the exploring expeditions which have plunged into the Antarctic through the Ross Sea.

Nestling in the midst of the Port Hills, which alone break the even level of the broad, beautiful, and richly productive



Photograph from Captain J. H. Quinan

AN EARLY MORNING VIEW OF THE VOLCANIC PLUME OF SMOKE RISING FROM BOGOSLOF ISLAND, ALASKA

Canterbury Plain as it sweeps westward toward the lofty mountain ranges along the west coast, it is one of the most picturesque harbors in the world.

We found the people thoughtful and hospitable, even though practically every family had a son or daughter at the war front, many of whom already had fallen during the terrible campaign at Gallipoli.

Here we made final preparation for the most strenuous trip the *Carnegie* had ever undertaken, a circumnavigation of the globe in the sub-Antarctic regions in one season, a feat never before attempted.

At New York a belt of brass plate a quarter of an inch thick and four feet in width had been placed on the vessel's hull at the water line as a protection against floating ice. At Lyttelton other precautions were taken to guard against damage from heavy seas and to protect the crew against cold weather.

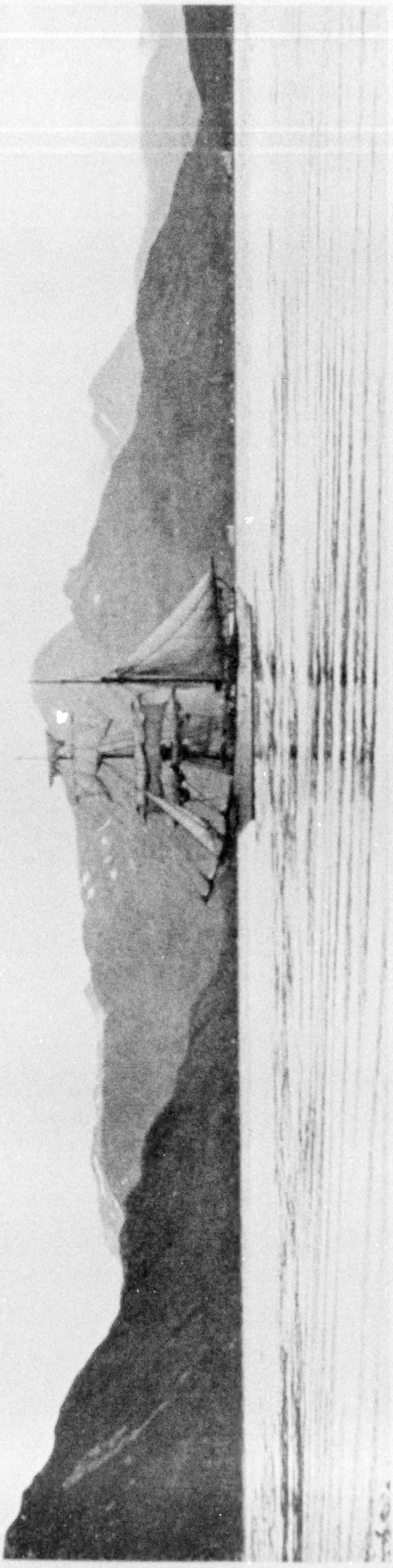
With some difficulty a crew was obtained which was not afraid to venture into the unknown on a voyage through the cold, stormy, and iceberg-infested regions of the Southern Ocean. This was accomplished only by paying more than the usual rates and by promising a bonus of an extra month's wages at the conclusion of the four months' trip upon our return to New Zealand.

One seaman was bailed out of jail the morning of our departure. Upon our arrival at Lyttelton he had promised to go with us on the trip around the South Pole, but had requested leave without pay during our stay in New Zealand, as he knew he would be unfit for duty, owing to the proximity and accessibility of drinking places.

His frankness and honesty deserved consideration, and so the arrangement was made. His money was kept on board and was given to him a little at a time. He was often in trouble and occasionally his fine would be paid and he would be relieved from custody, but for the most part his leave was spent in jail.

DODGING ICEBERGS IN THE FOG AND GALES AROUND THE SOUTH POLE

Leaving Lyttelton on December 6, 1915, we sighted the Antipodes three days later, and in two weeks we had met our first iceberg at 60° 80′ south latitude. Early



Photograph by J. P. Ault

THE "CARNEGIE" IN DUTCH HARBOR, ALASKA, WITH SAILS PARTLY SET FOR ATMOSPHERIC-ELECTRIC OBSERVATIONS

the next morning we had our initiation into the difficulties and dangers of Antarctic navigation.

After leaving the "roaring forties," we had crossed the "furious fifties" and were now in the "ice-clad sixties," where constant watchfulness and careful seamanship were necessary to prevent disaster.

Towering ice islands loomed up on every side out of the fog, mist, and driving snow. They became so numerous that the course had to be changed frequently and quickly, while the small pieces of ice, or "calves," scattered about were a constant menace. It seemed like trying to sail down Broadway with all the skyscrapers gone wild and drifting around in our pathway.

These huge bergs were immediately north of the close ice pack encountered by Ross in 1842. They had broken away from the great ice barrier which surrounds the Antarctic Continent and were slowly drifting northward, where they would finally break up, melt, and disappear in the warmer latitudes.

THIRTY BERGS SEEN IN ONE DAY

More than 30 icebergs were sighted the first day, the largest number seen in a single day during the entire trip around the South Pole. The temperature of both the air and the sea water dropped to half a degree below freezing, the lowest temperature experienced during the cruise. Our heaviest snowfall accompanied the lowest barometric pressure recorded—28.26 inches.

For more than eight days we were sailing almost due east among icebergs more or less numerous, with cold, damp weather, fog, and blizzards. The last berg seen before nearing South Georgia was sighted near the position given for Dougherty Island, and at a distance was mistaken by everyone on board for an island.

Orders were given to start the engine in order to land on the new island, but an approach within three miles revealed the fact that our new discovery was another iceberg. The reflection of the light from the vertical face resembled a dark, rocky cliff, and the sloping top showed white, making the whole appear as a snow-capped, rocky island.

The poor visibility in the neighborhood of these icebergs may explain the numerous reports of islands discovered in the early days which have never been seen by later navigators. Dougherty Island seems to be one of these lost islands of the Pacific. We sailed over its reported position on December 25, and nothing was visible for more than 40 miles in any direction. Our own position was well determined, and the visibility that morning was good.

We sailed on a zigzag course to the eastward on the assumed latitude of Dougherty Island for over 200 miles. During a part of this trip we were following or intersecting the historic route taken by Sir James Ross, over 70 years ago, in the ships *Erebus* and *Terror*, in order to determine the changes which have taken place in the Earth's magnetism since his magnetic observations were made.

SOUTH GEORGIA, SIR ERNEST SHACKLETON'S LAST RESTING PLACE*

Off Cape Horn we had the finest weather of the entire trip. Being well south of the Horn, near 60 degrees south latitude, we had clearing skies and light northerly winds. A few days later, in the fog of the early morning, we found ourselves in the midst of 20 large icebergs, which seemed to have met as an outpost off the northwest point of the island of South Georgia.

In the poor visibility, ice islands and land islands were almost indistinguishable, as we could see less than a quarter of a mile in the fog, and we were to leeward of the northwest point of South Georgia before we were aware of it. It was necessary to call on the engine to extricate the vessel from her embarrassing nearness to these huge masses of ice and to beat to windward in order to weather the point.

As we sailed along the north coast of South Georgia, about which so little is heard, enveloped as it is in the cold mists and mystery of the little-known Southern Ocean, the weather cleared and we had a magnificent view of snow peaks, rugged, cold, hard mountains, with immense glaciers flowing between and the valleys partly filled with fog banks.

We remained in King Edward Cove only two days, taking on fresh water and some fresh provisions, including potatoes, pork, and mutton. Sir Ernest Shackleton had stopped here a few months previous, before plunging into the darkness and silence of the Antarctic on his ill-fated vessel, the *Endurance;* and he now has found a last resting place on the rugged hillside overlooking this snug little harbor, where seasons may come and go and where hurricanes and blizzards may blow at will.

The six whaling stations on the island employ more than 1,000 men and produce about 240,000 barrels of whale oil annually. A monthly steamer to Buenos Aires connects them with the outside world. The Argentine Government maintains a meteorological station at King Edward Cove, and the wife of the observer in charge was the only woman at this station. There were only two women on the entire island.

The shore whaling station flenses the blubber from the whale, and then the remainder is sold to the floating factory, located on a large sailing vessel anchored in the harbor. Frequently whale carcasses drift about the harbor and strand upon the beach, some just under the window of the meteorological observer's home, remaining there until absorbed by the all-suffering air.

No poetic phrases can describe the odor which is the hourly portion of those who dwell on the shores of this beautiful harbor. The beach is several inches deep with grease and whale refuse, affording rich pasturage for the several hogs kept at the station to vary the whale meat food supply.

Some of the members of our party refused to eat the nice, fresh pork because the pigs had not lived in green meadows during their lifetime. The whale steak, after being spiced and soaked for two days, was quite palatable, and the smoked whale meat differed very little from smoked beef.

The people were extremely hospitable and loaded us with gifts of penguin eggs, whale ear bones, and sea elephant tusks.

The penguins, funny little creatures,

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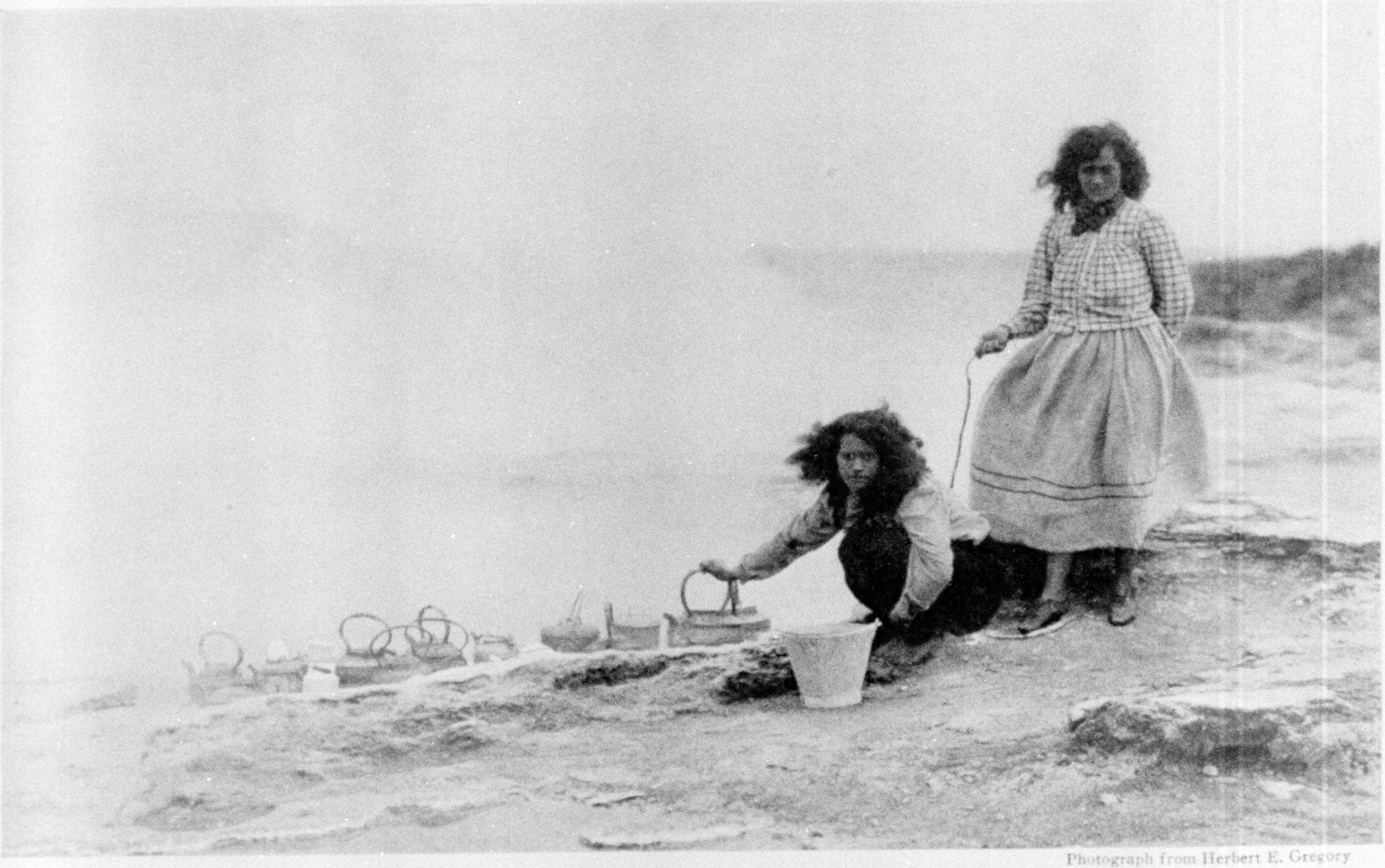
* See "South Georgia, an Outpost of the Antarctic," by Robert Cushman Murphy, in THE GEOGRAPHIC for April, 1922.



Photograph from Herbert E. Gregory

MAORIS OF NEW ZEALAND USING THE HOT SPRINGS OF THEIR NATIVE LAND AS STEAM COOKERS

The thermal springs of New Zealand cover an area of 5,000 square miles. They are a source of great interest to tourists and their healing properties are widely recognized.

half fish, half bird, and fairly human in their curiosity and comic actions, were an interesting study (see illustrations, pages 657, 662, and 668).

After we left the snug safety of King Edward Cove and plunged into the stormy seas of the Southern Ocean, the icebergs became larger and more numerous and the fog thicker and more persistent.

Some of the icebergs were 400 feet high and five miles long—flat, table-topped bergs of regular outline. One loomed up through the fog as a vast extent of dark land, with the bright iceblink reflected from the fog above it.

LINDSAY ISLAND HAS BEEN SEEN BY FEW NAVIGATORS

We passed along the north coast of Lindsay Island about three miles from shore, obtaining a good view of this lonely, desolate place, with its deep mantle of snow and ice surrounded with wrecked icebergs which had come to grief on its shoals. The island is only four-and-a-half miles long and is almost entirely covered with glaciers.

We had no difficulty in locating the island. When our reckoning placed it about 10 miles southeast of the vessel, we were able to locate it in the proper direction, in the midst of a driving cloud and fog bank which surrounded the land, by noting the white streak of a glacier which remained fixed in position and outline. A delegation of six penguins came out to greet us, and these were the only ones seen in this vicinity.

The only sign of human kind seen on the entire trip of four months, except at South Georgia, was the naked body of a dead man floating in the open sea between Heard and Kerguelen Islands, far from land and remote from any regular steamer routes. Stormy weather and thick ice prevented our sighting Thompson and Bouvet Islands and compelled us to omit a contemplated stop at Kerguelen Island.

HEAVY STORMS SOUTH OF THE GREAT AUSTRALIAN BIGHT

The stormiest period of the trip awaited us south of the Great Australian Bight.

A storm at sea is an awe-inspiring experience and is always a time of anxiety until the temper and fury of the wind have passed their climax. The wind howls and shrieks through the rigging; the ship moans and shudders from stem to stern; the seas pile up and rush upon the tiny craft like so many laughing demons, threatening to overturn and engulf her and shaking her in their rage; often they climb right on board and sweep her from bow to quarter-deck.

Then, after a lull the storm seems to redouble its fury; the wind fairly screams; the ship rushes headlong, rises on a huge wave and nearly overturns, as she rushes down the far side of the crest into the trough below. Huge seas curl up and break behind the man at the wheel.

But the vessel is staunch and rides on, emerging from the heavy seas with water pouring from every scupper, with huge waves alternately slapping her on the bow and pounding her on the stern, or climbing on board in an effort to swamp her. No sails can be set, and she scuds along at full speed under bare poles. If the storm is too severe, the vessel is stopped and "hove to," and with head up into the wind she rides the waves like a duck.

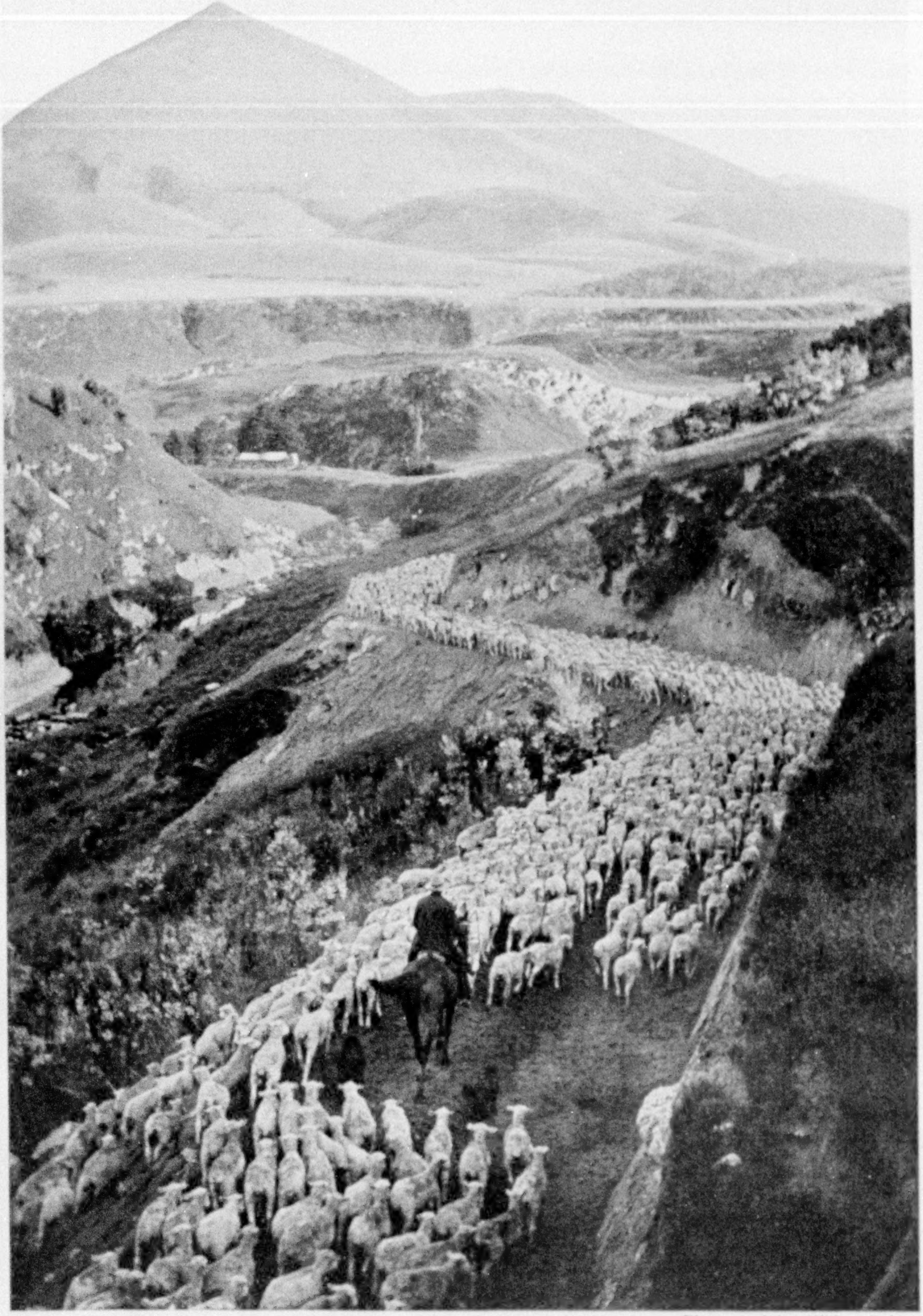
Finally the anxiously watched barometer begins to rise, the wind moderates and shifts, the sky begins to clear, and the seas, disappointed, baffled, and growling, subside. The vessel is headed up to her course, the timid sails begin to show themselves one at a time, and at last we are again on our way, watching the barometer and sky for indications of the next storm.

FIFTY-TWO DAYS OF GALE WHILE CIRCUMNAVIGATING THE ANTARCTIC

Lyttelton was reached on April 1, 1916, after 118 days at sea. The total distance from Lyttelton around to Lyttelton again was 17,084 miles, giving an average of 145 miles per day. During this period we had gales on 52 days, half of them reaching hurricane force.

We were passed by a continual procession of circular storms moving around the Antarctic Continent from west to east. Always with a decreasing atmospheric pressure, we would have northerly winds shifting to the northwest and blowing hard. As the pressure began to increase, the wind shifted to southwest, blowing a gale if the rise was rapid.

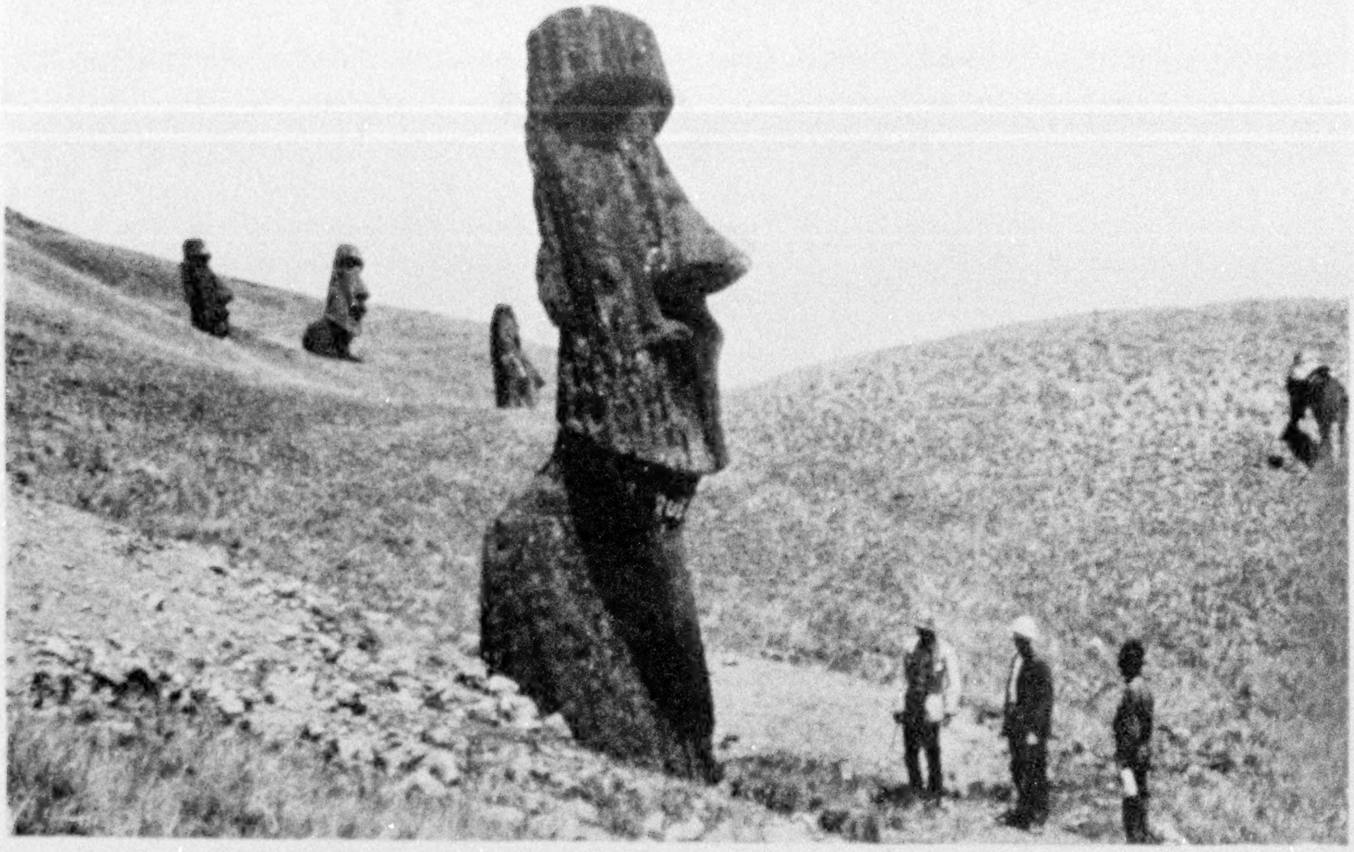
We had precipitation of some sort,



Photograph by William Reid

AFTER SHEARING IN WAIRARAPA COUNTY, NEW ZEALAND

Wairarapa, in the southern section of North Island, is known as "the county without a black sheep." The wool exports from New Zealand in a recent year exceeded 250,000,000 pounds.



Photograph by J. P. Ault

IMAGES OF GRIM AND SOLEMN ASPECT ON EASTER ISLAND (SEE TEXT, PAGE 654)

either mist, fog, light drizzle, rain, hail, or snow, on 100 out of the 118 days. Fog was present on 20 days and snow on 16 days, and over 135 icebergs were sighted.

The aurora australis, or south polar lights, were seen on 14 different occasions, some being unusually brilliant. They were generally in the shape of long streamers and pencils of white light, or great arches of white or green light stretching across the sky, but never displaying the variety of gorgeous colors seen in northern latitudes.

In spite of fog and storm, the sun or a star was seen every day, and the magnetic declination was observed on every day except one—a truly remarkable record in view of the extremely unfavorable climatic conditions.

Below the western part of Australia, at about 60 degrees south latitude, we found the magnetic declination, as shown on the nautical charts, to be 12 to 16 degrees in error, the largest difference found in any of the *Carnegie's* work.

THE GRACEFUL ALBATROSS BECOMES COMICAL ON SHIPBOARD

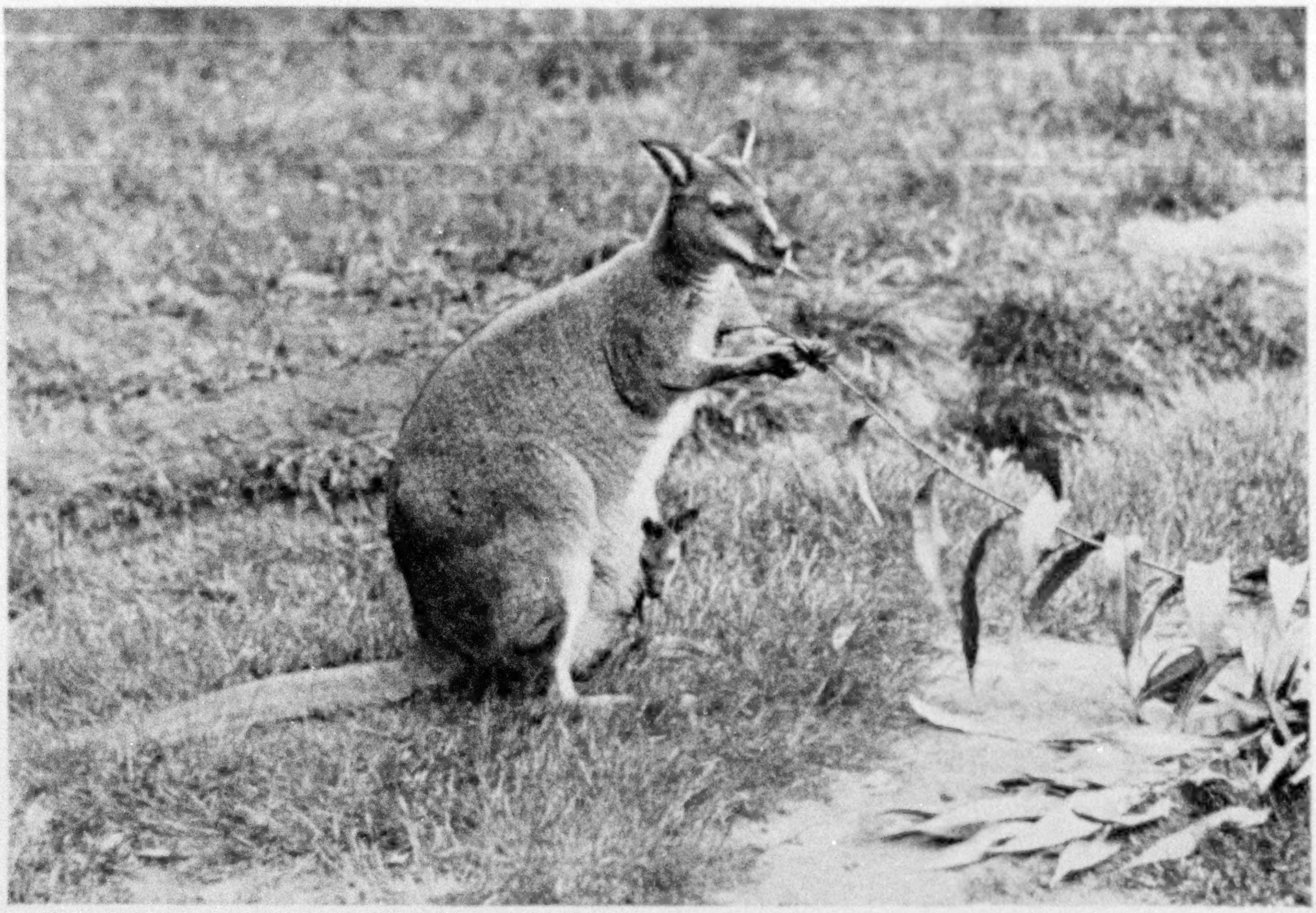
The wandering albatross (see illustrations, pages 659 and 666) was our daily companion throughout the southern cruise. Soaring about the vessel, now skimming the waves with the tips of his wings and now rising high above the masts, he never flapped his pinions. He seemed to delight to play in the cross-currents of wind in the lee of the sails, and as he hovered over the ship his curious eye seemed to observe every detail of life on board.

Many were caught with a baited triangle of metal trailed astern at the end of a long line. Their hooked beaks would catch in the corner of the triangle, and they would be hauled up uninjured. Once on board, they were allowed to walk about the deck freely, as they could not rise and fly away without a long run or "take off."

It was very comical to see them become seasick, due to the motion of the vessel, thrusting their beaks up into the air, groaning and snapping their bills, and trying to "feed the fishes" like regular land-lubbers. The largest measured 17 feet from tip to tip of wing.

Other birds seen were the molly-mawk, the sooty albatross, the Cape pigeon, the snowy petrel, the giant petrel, the skua gull, and the penguin.

Our stay at the next port, Pago Pago,



Photograph by William Reid

A TASMANIAN KANGAROO WITH YOUNG IN POUCH

The Tasmanian kangaroo is smaller than that found in Australia and is about the size of an ordinary sheep. Only one young one is produced at birth. The female carries it in a pouch until the offspring is able to run by the side of the parent, but retiring into the pouch in times of danger.

Tutuila Island, American Samoa, was very short and was featured by almost continuous entertaining by the American naval officers and their families stationed there. Before our arrival an interned steamer's cargo of bottled beer was rapidly being depleted by the popular daily swimming parties, until an order was issued forbidding swimmers to board vessels at anchor.

The harbor, located in the crater of an extinct volcano, is entirely surrounded by mountains whose slopes, richly covered by palms and tropical verdure, rise steeply from all sides, forming one of the safest and most beautiful harbors of the world.

The town containing the naval station is built upon a narrow strip of land on the shore of the harbor, with a background of heavy growths of bananas and coconut palms rising on the slope beyond. Rain is abundant, at times superabundant, and the water supply is piped into the town from a reservoir built high up in one of the mountain streams far back in the interior.

The Samoans are noted for the high character of their family and tribal relations. The people have been encouraged to retain their native customs, to live in their old-style houses, which have proved their adaptability to the climate, and as a result the Samoans are to-day the healthiest and most stalwart of all the Polynesians, and, unlike the Marquesans and the natives of other island groups, are not being rapidly depleted by the ailments of civilization.

The law is tempered to suit the mind of this simple-hearted people. The jailer and his charges close up the jail over the week-end and go home to visit their families. The government handles the copra crop for the natives, thus insuring them a fair profit for their labor.

Our party attended the wedding of a Samoan princess, and the principal guests were presented with mats and tapa cloths by the bride's father. An elaborate feast

Photograph from American Australian Bureau

FEEDING AN EMU IN THE NATIONAL PARK ON WILSON'S PROMONTORY, VICTORIA, AUSTRALIA

Next to the ostrich, the common emu is the largest of existing birds. Its nine to thirteen eggs are laid in a shallow pit scraped in the ground and are hatched by the cock-bird.

of roast pig, chicken, taro, breadfruit, sugar cane, and coconuts was spread before the guests, but the major part of it was eaten or carried home by the onlookers, who were invited in after the guests had departed.

"THE MYTHICAL ISLAND OF GUAM"

Guam used to be the mythical port for which vessels would clear when sailing under sealed orders with destination unknown.

When we told one of our New Zealand friends that we were sailing for Samoa and Guam, he thought we were joking. When assured that Guam was a real place, he apparently made inquiries among his friends, for the next day he said he had found out all about Guam; that it was an island covered with a 15-foot mantle of snow and ice. He was more puzzled than ever when we told him that Guam was one of the hottest tropical islands north of the Equator.

Far from being an island of mystery, Guam is a very important cable and naval station belonging to the United States since 1898.* But the typhoon season was beginning, and we soon sailed on again for San Francisco, being fortunate in getting safely out of the port of San Luis d'Apra, thickly dotted as it was with coral heads and reefs and open toward the heavy gales from the southwest.

A glimpse of the dear home land was very welcome, but after a month's stay in San Francisco the *Carnegie* was again on her way November 1, 1916, en route for Easter Island.

EASTER ISLAND, THE UNSOLVED MYSTERY OF THE PACIFIC

Easter Island, or Rapanui, is located in the eastern part of the South Pacific Ocean, about 1,400 miles east of Pitcairn and about 2,000 miles west of Chile. It contains about 50 square miles, and has been aptly described as a heap of stones and lava.

It has no harbors, no trees except a few fig trees, and no running water. Cisterns, wells, and a few springs of fresh water on the beach, uncovered at low tide and fed from the lakes in the extinct craters, furnish the water supply. Some of its volcanic peaks reach an altitude of 1,800 feet.

The climate is almost ideal, being moist and temperate, the southeast trade wind blowing for a major part of the year. Bananas, sugar cane, cotton, tobacco, sweet potatoes, melons, pumpkins, pineapples, corn, and tomatoes are grown in small quantities. More than three-fourths of the island is pasturage land, the rest being covered with broken lava.

The 200 natives are a mixed race, being of Polynesian descent, but in later years they have been much changed by mixture with white whalers and traders. There seems little organization among them, as they have no chiefs and all live in the same village as one large family.

The Chilean Governor, an old Frenchman and a Greek sailor, who is manager of the ranch, were the only white people on the island. The live stock consisted of 4,000 cattle, 8,000 sheep, and 400 horses. There are no exports except hides; every five years selected animals are killed for their hides and the meat is thrown away. The island belongs to Chile, but communication with the mainland is very irregular, a vessel being sent out usually once a year. However, often two years pass without new supplies.

When we arrived no ship had reached the island from Chile for more than a year and a half, and the general store contained only one tin of kerosene and six tins of sardines. Clothing of any description and soap were at a high premium. The requests for the latter finally became overwhelming, some women even coming to us with American or English gold in outstretched hands, begging for a cake.

In order to satisfy as many needs as possible and as chickens were plentiful, though very small, a fair and satisfactory rate of exchange was finally adopted. All who had chickens could get soap at the rate of two chickens for one cake of this important article. We built a coop on the quarter-deck and had fried chicken for many weeks after leaving the island.

TRADING WITH THE NATIVES

Small images, made to imitate the huge statues for which the island is famous, and other curios were traded for any articles of clothing which could be spared. Some of the trades were: one good image for two pots of paint; one image not quite so old for one pair of old trousers; native carrying camera on horseback one day for one small piece of rope to tie his horse; one collection of ancient obsidian spear points and war hatchets for one old suit of clothes; one small collection of spear points for six cigarettes; one small image for one shirt, and the shirt must be that worn by the trader, as the native thus feels sure he is getting a good article. One man on board had to change shirts three times in an afternoon.

The islanders take great care of their boats, using them to obtain fish for food and to catch porpoises for the oil used in their lamps. A feature of the New Year's Day celebration was a boat-race. The entry of the crafty old Greek sailor reached the finish line nearly a quarter of

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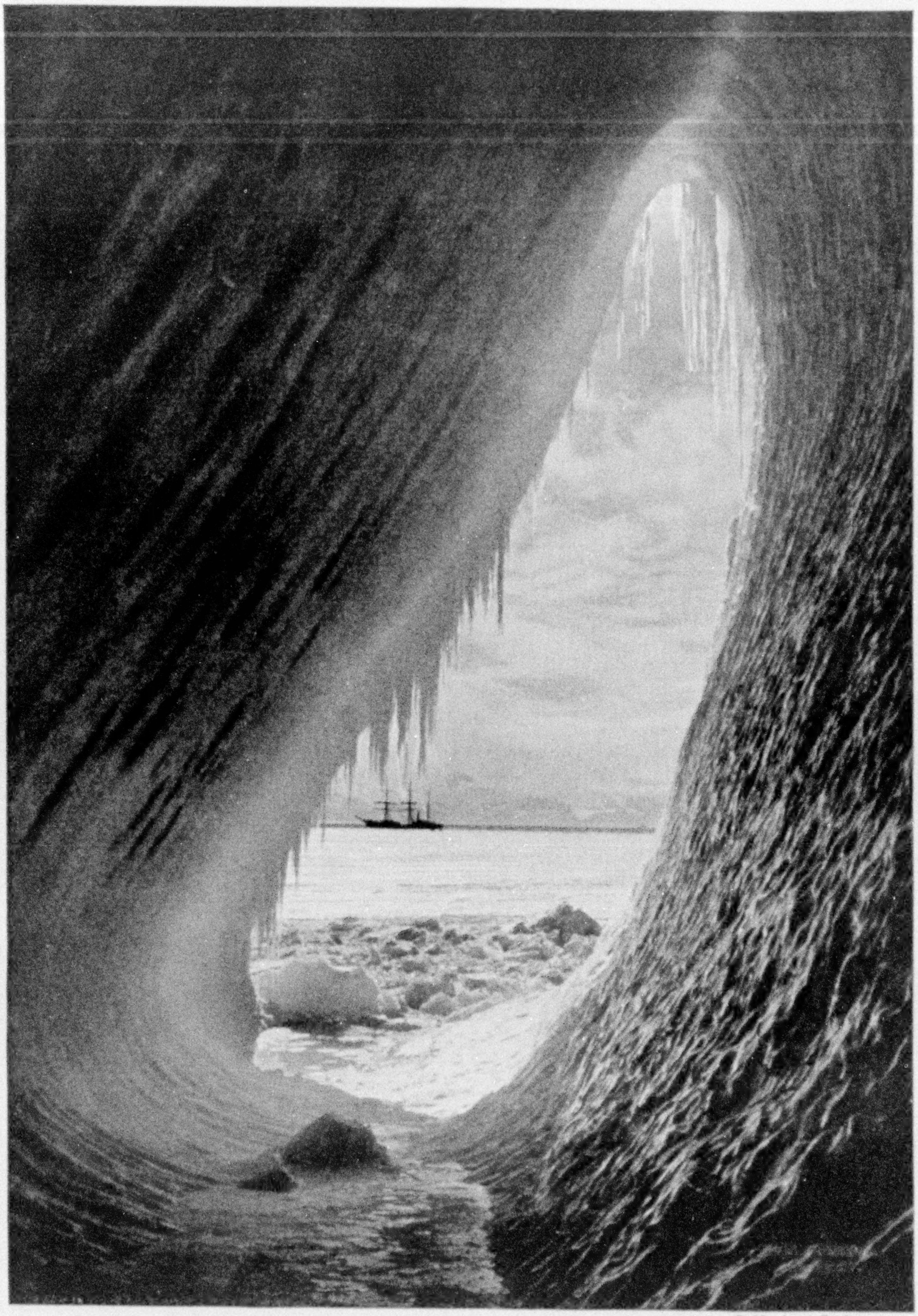
* See "Our Smallest Possession—Guam," by William E. Safford, in THE GEOGRAPHIC for May, 1905.



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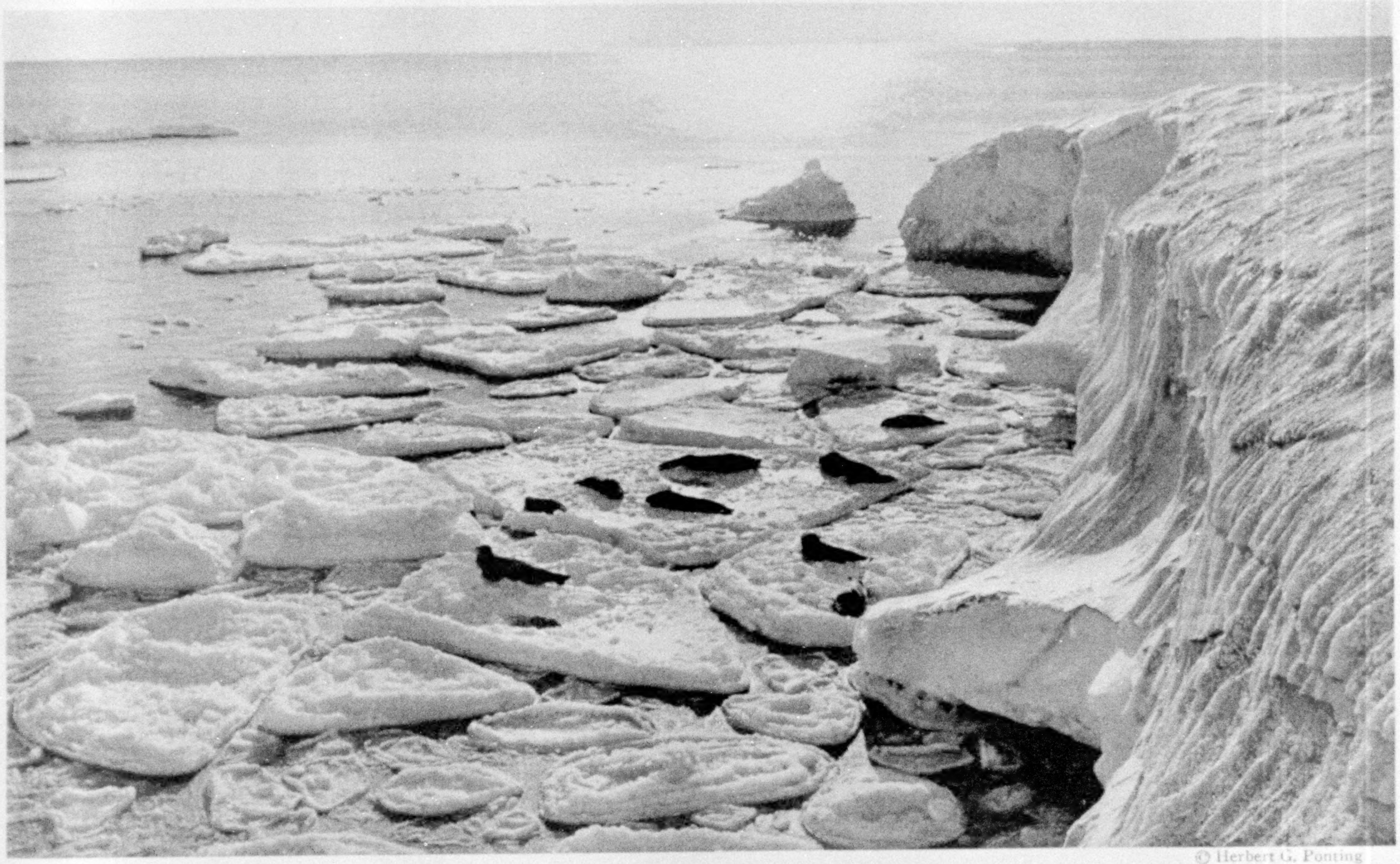
A GROTTO IN AN ICEBERG

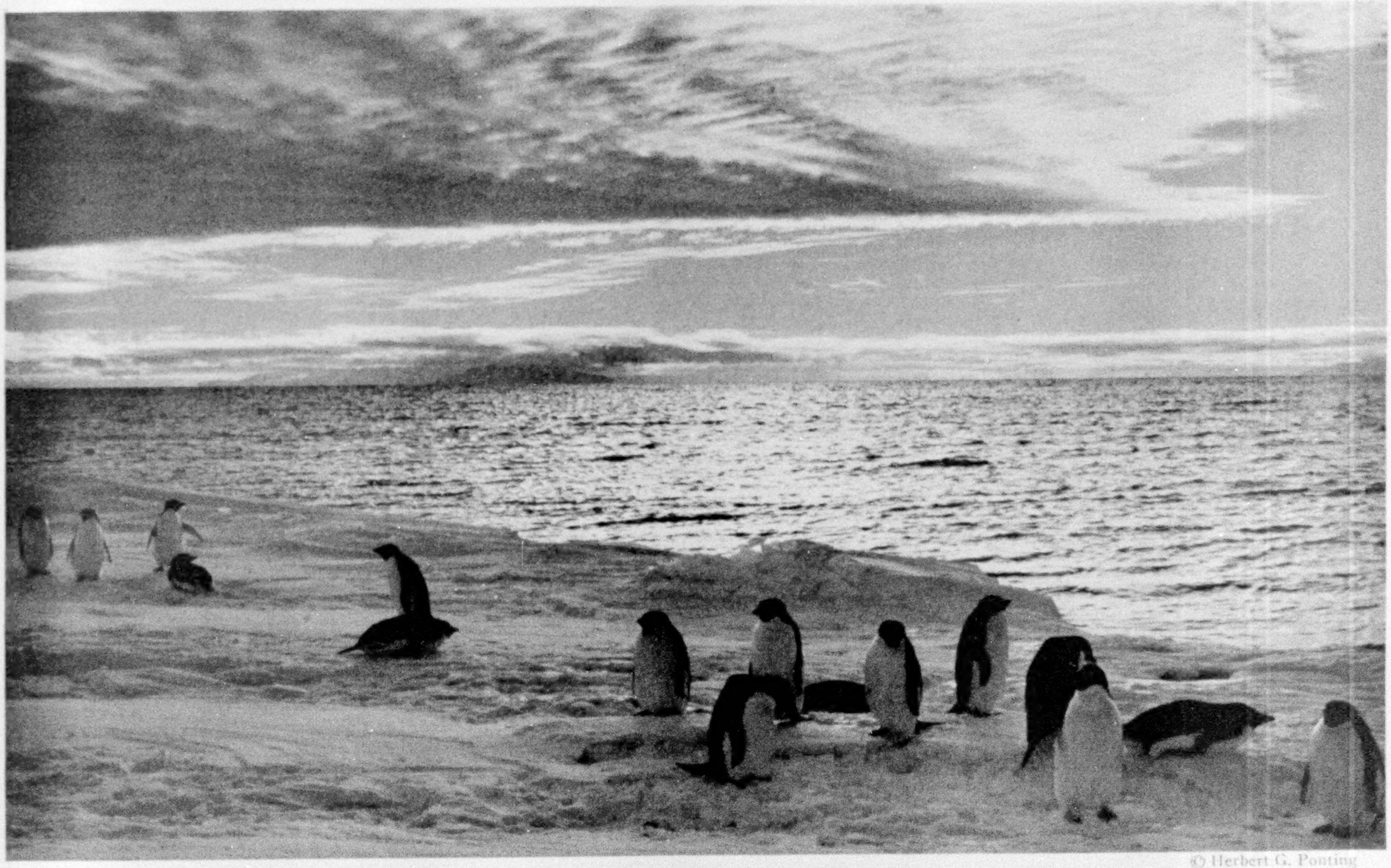
This unique study was made from the heart of an iceberg. The grotto was formed by a berg as it turned over, carrying up with it a large floe, which froze on to it, leaving this beautiful cavern, through which it was possible to walk for more than a hundred feet. By good fortune, at the time the artist reached this spot, the *Terra Nova* could be seen in the distance. This and the seven succeeding illustrations of Antarctic life are from photographs made by Herbert G. Ponting, the official photographer of the British Antarctic Expedition under Capt. Robert F. Scott.



© Herbert G. Ponting

SEALS BASKING ON PANCAKE ICE

When the sea begins to freeze, small circular patches of ice form on the surface, no larger than a penny; these rapidly increase in size and become what are known as "pancakes." These pancakes in turn freeze together, becoming "floes."



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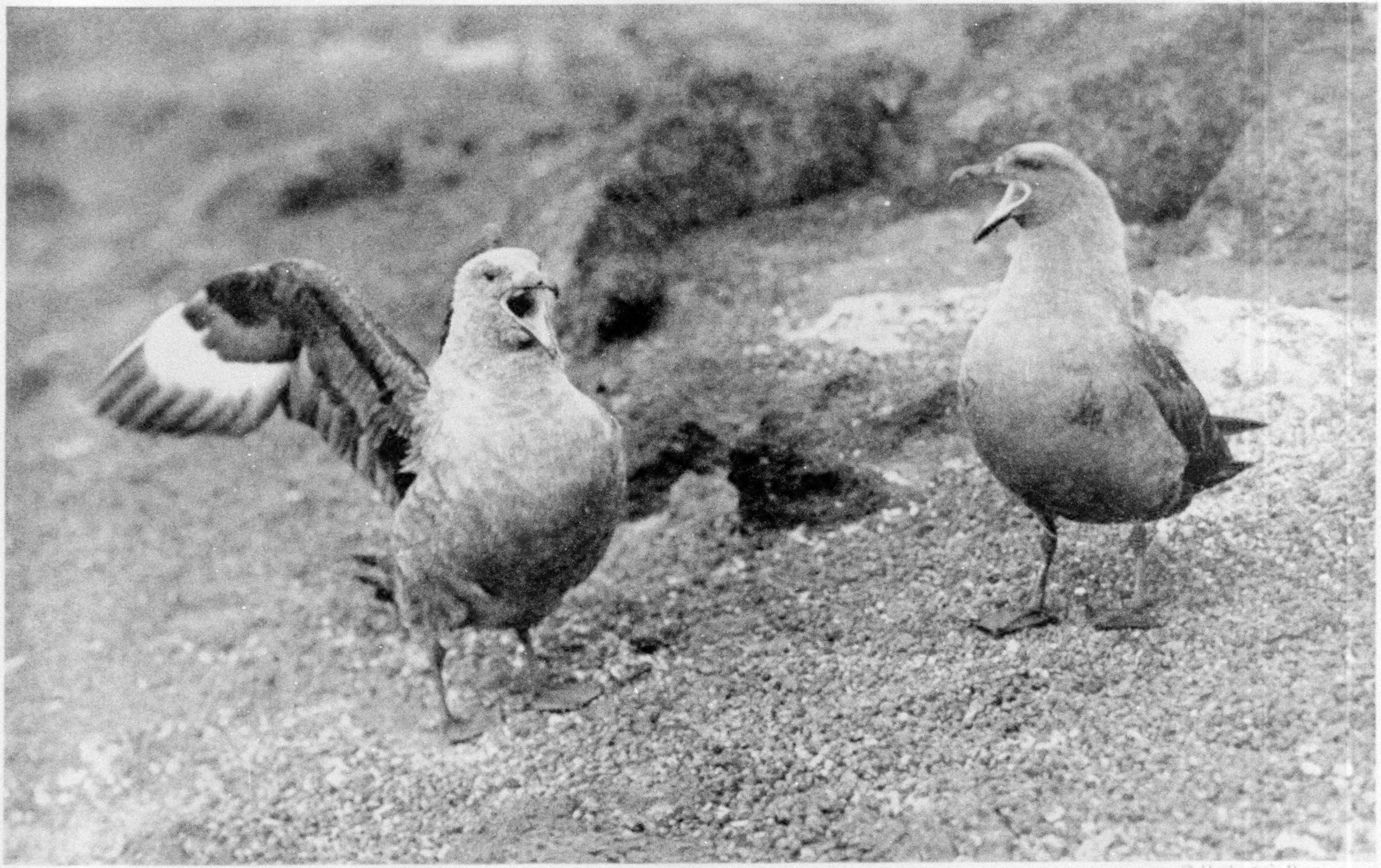
THE MIDNIGHT SUN IN SOUTH POLAR SEAS

A "mackerel sky" through which the sun sheds feeble rays over McMurdo Sound, viewed from the ice-foot. McMurdo Sound separates South Victoria Land from Ross Island, on which rises Mt. Erebus (see South Polar Inset in the Map of the World).



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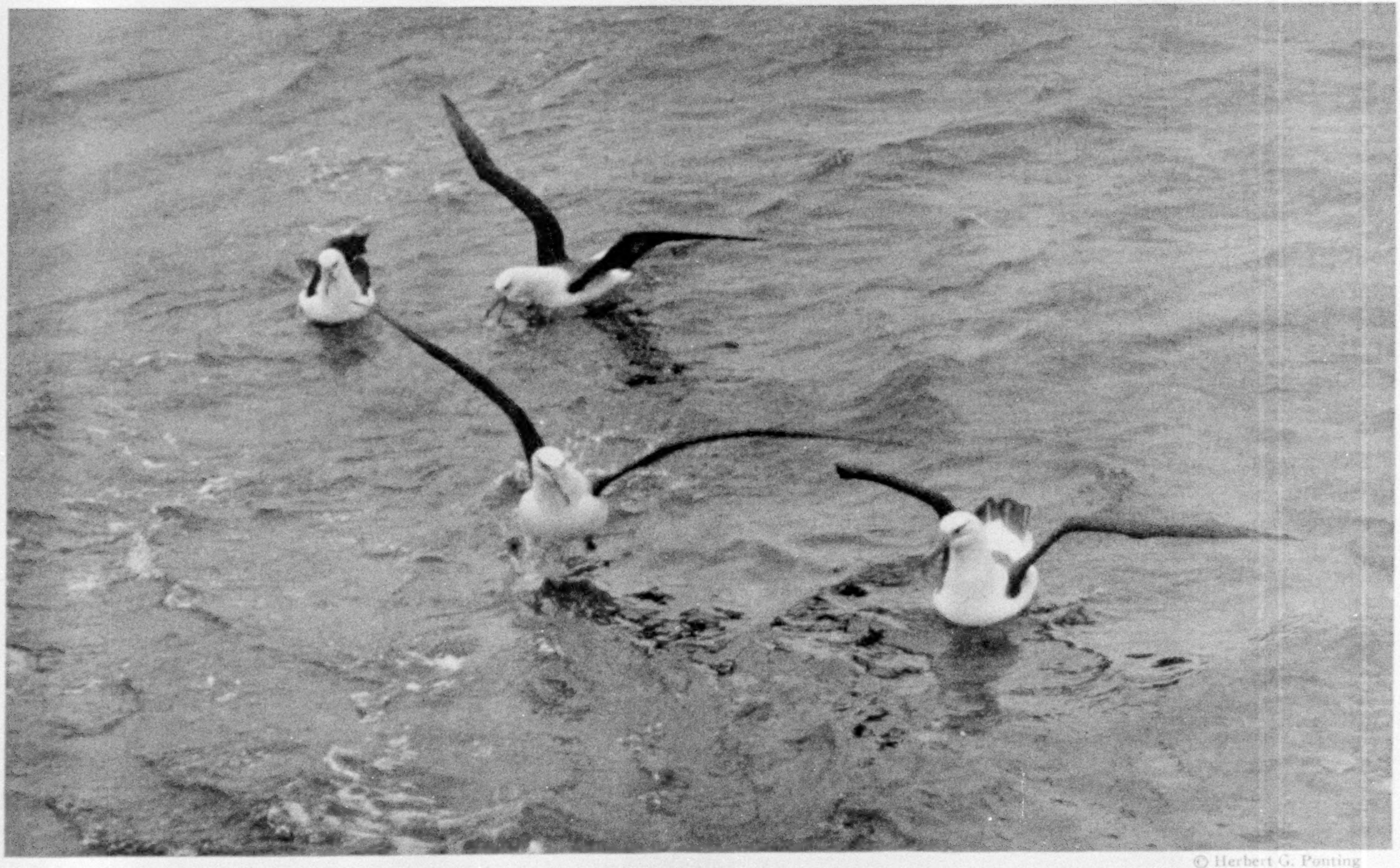
A SKUA GULL DUET

These rapacious birds are called "big pirate ships." They are the enemies of every living creature which they can master, and sometimes eat their own offspring.



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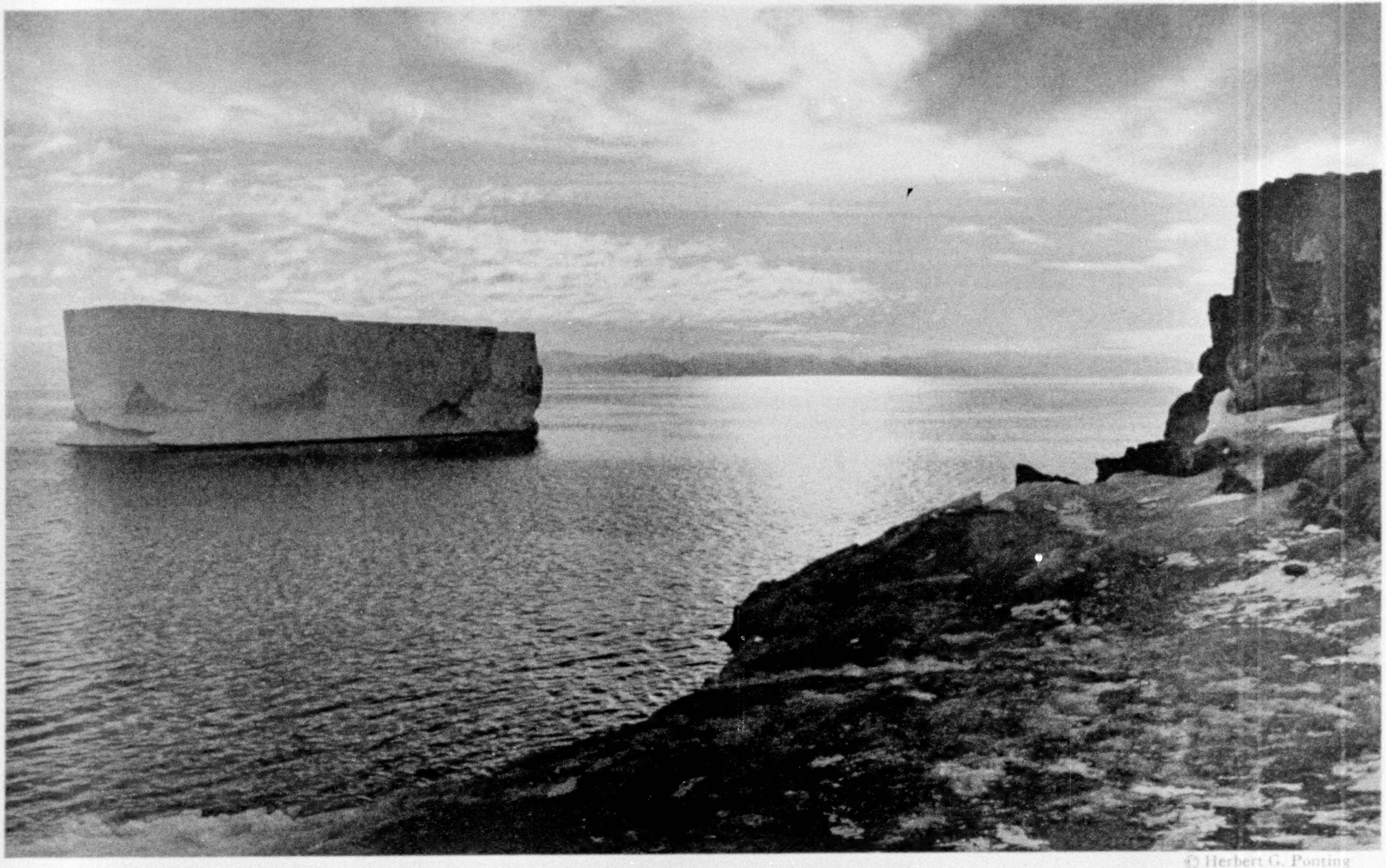
ALBATROSSES FORAGING AT THE STERN OF A SHIP

The acme of grace and symmetry in the air, the albatross is a most ungainly looking creature when alighting on the water, with his big webbed feet straddled to their fullest extent. When rising, he stretches out his neck and with great flapping of wings runs along the top of the water for 70 or 80 feet, until he acquires sufficient momentum, then tucks his "landing gear" beneath him and is at home once more in the air.



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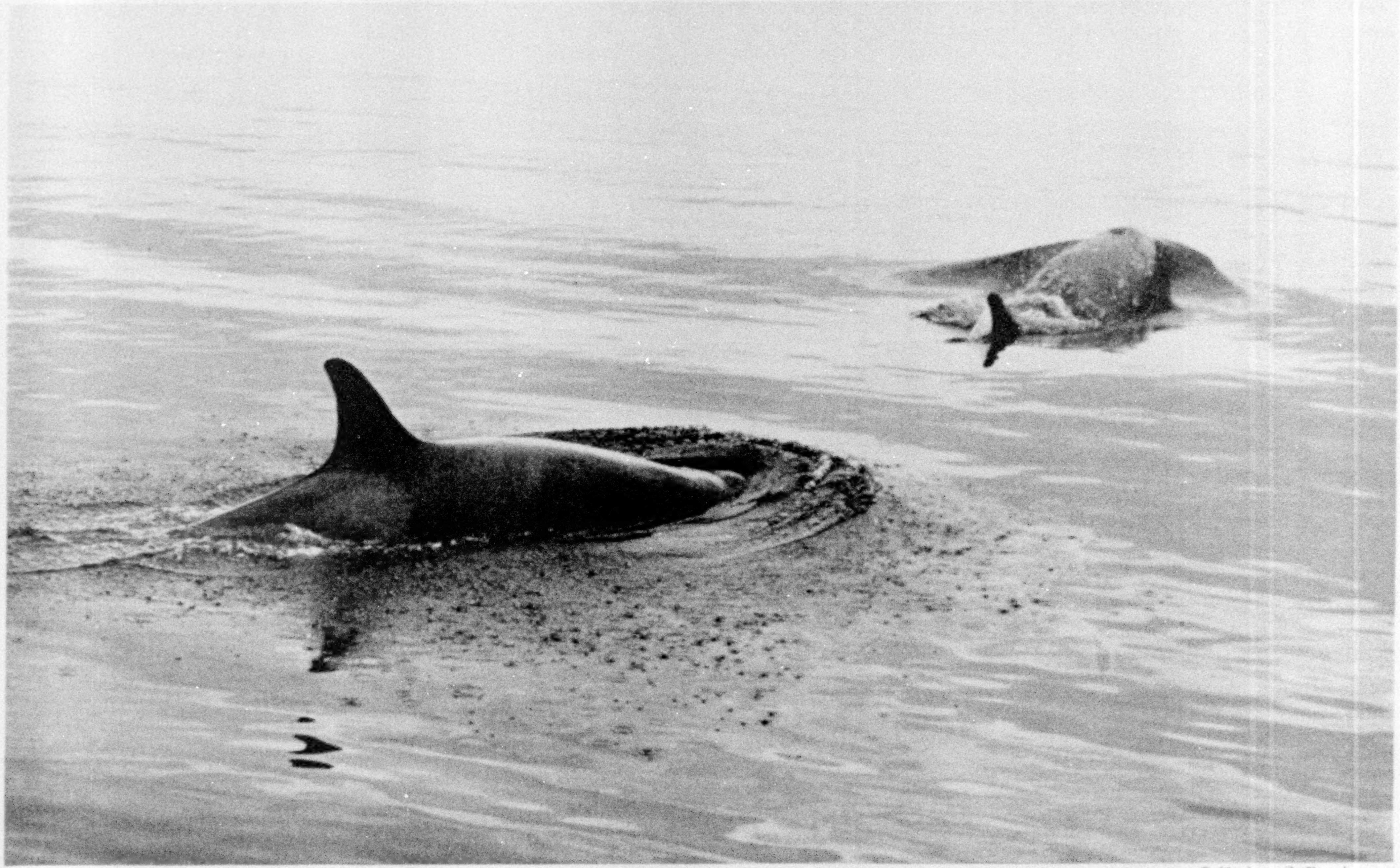
A TABULAR BERG NEWLY "CALVED" AWAY FROM THE GREAT ICE BARRIER

The clean-cut line of the fracture where it broke away from the parent glacier shows that it has not been long subject to the erosive action of wind and water. The berg is about 100 feet high, and, as only about the eighth part is visible above water, there are some 700 feet of ice below the surface. In the distance the peaks of the Western Mountains can be seen. During its circumnavigation of the Antarctic, the *Carnegie* sighted more than 135 icebergs (see text, page 651).



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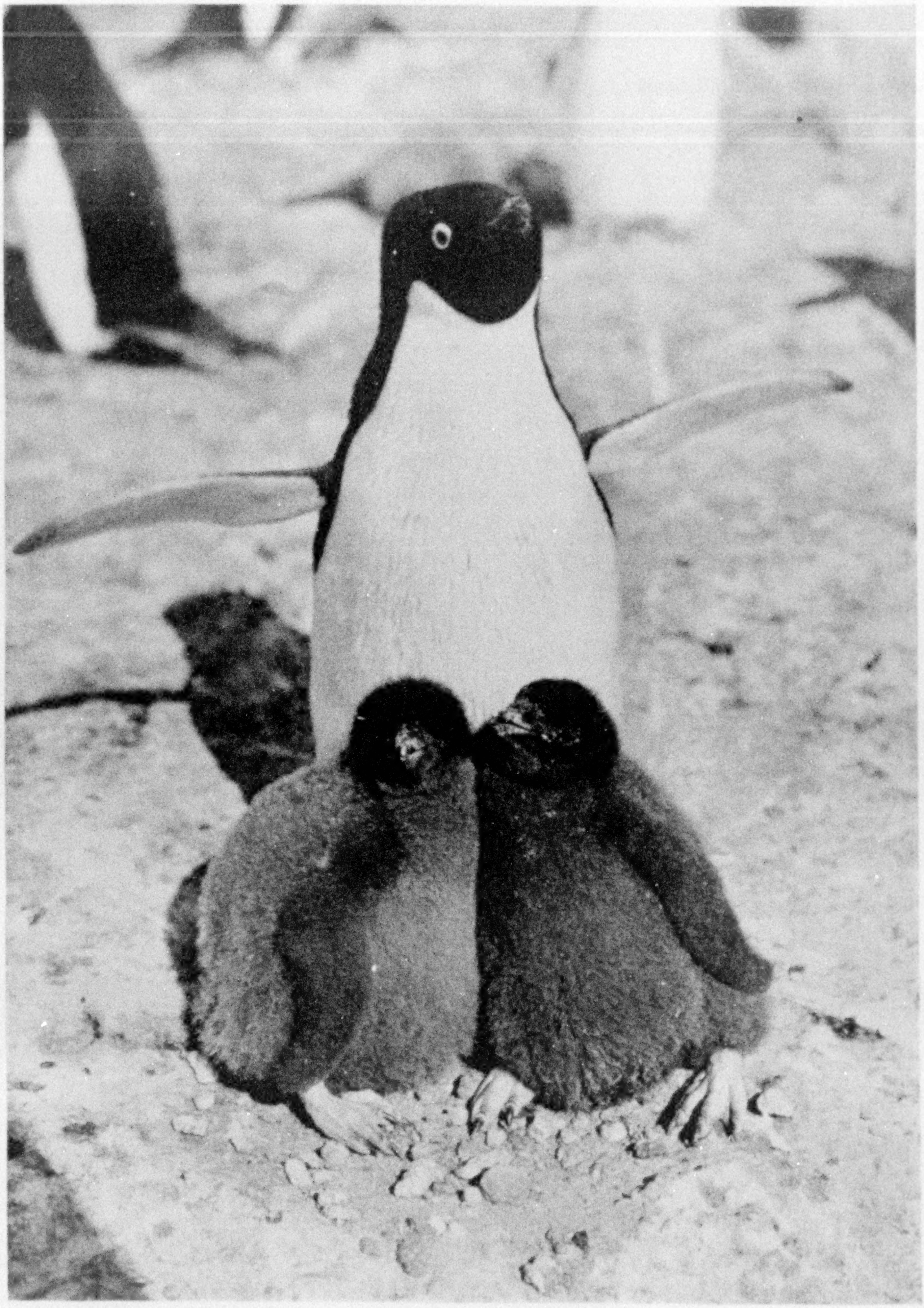
KILLER WHALES RISING TO THE SURFACE FOR AIR

The killers are the most ferocious creatures inhabiting the seas. Though small for whales (from 20 to 30 feet in length), a pair have been known to attack and kill a sperm whale 70 feet in length.



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"BLESS YOU, MY CHILDREN": A PENGUIN AND HER CHICKS

"Funny little creatures, half fish, half bird, and fairly human in their curiosity and comic actions" (see text, page 647). When a brooding penguin is driven from her nestlings she lingers near by, trumpeting loudly until the disturbance is over; then she returns and, stooping down, anxiously examines her treasures minutely, like a nearsighted person.

XUM

a mile ahead of his opponent. He attributed his success to having greased the bottom of his boat early that morning. The winner of the horse-race saw that he was being hard pressed by his rival on the home stretch, so he decreased the weight by loosening the girth and letting the saddle "go by the board" while galloping at full speed.

MYSTERIOUS STATUES, GRAVEYARDS, AND CAVE DWELLINGS OF AN ANCIENT RACE

Several trips on horseback were made to the eastern end of the island, a distance of about 12 miles from the anchorage in Cooks Bay, to see the huge statues scattered over the plain and up the slope of the image mountain, Rano Raraku. The impressive scene as we rode over the hill, and the images on the hillside across the valley came into view, will never be forgotten. With one accord we drew rein and gazed spellbound.

These huge statues, staring at us out of unseeing eyes, with somber, austere expressions and unsmiling lips, seemed almost human. As our imagination pictured the scene of a bygone day, with the valley and hillside alive with activity, we had a feeling that we were not alone. Yet their silence remained unbroken, giving no hint of the secrets which they have been guarding for centuries.*

Digging into the graves at the foot of the large image platform near Rano Raraku, we found numerous skulls with curious geometric designs carved on the foreheads, indicating that they had been chiefs. One skull was unearthed having a fully formed tooth projecting upward into the center of the nose. The jaws seemed to be normal in shape and to have the usual number of teeth in normal position.

In another part of the island are the remains of stone houses or caves built into the hillside, partly underground, in a remarkable state of preservation, some being 100 feet long by 20 feet wide, with walls five feet thick and five feet high. They are very skillfully built of large flat stones laid in courses and fitted together in the manner of roof tiles, the rooms being lined on the inside with upright slabs on which are painted hieroglyphic figures representing birds and animals. The doorway is quite low, the dweller being compelled to enter on hands and knees. The lava rocks near these cave houses are curiously carved into resemblances of various animals with bird heads.

The Governor detailed for us an interesting tradition of the bird cult of these ancient peoples. It differs somewhat from other versions, but refers to a ceremony carried out annually in former times.

The people who lived in these cavelike homes and who made the carvings on the rocks seemed to have worshiped a certain sea bird.

Every spring the men who wished to rule the tribe were contestants in a peculiar race. About one-half mile from the southwest point of the main island is a small island, known as Motu Iti, or Needle Rock, about 100 feet high, with very steep sides. The one who swam across the channel, climbed to the top of this rock, secured the first egg laid by this sacred bird, and returned safely ahead of his competitors, was chosen to be chief for the ensuing year.

Frequently many lives were lost in the heavy surf. A big feast and pageant celebrated the election, and the eggs obtained by the successful contenders were preserved in the temple.

CHRISTMAS DINNER ON EASTER ISLAND

Rats and a species of quail or grouse were numerous on the island. The quail are usually hunted with dogs, who locate them in the grass, and the birds are then killed with a stone accurately thrown. The Governor's native servant, a boy of fifteen, called Indio, brought in some two dozen birds in about one hour by this method of hunting, and we had fresh quail for our Christmas dinner ashore.

The natives all speak Spanish in addition to their own native language. They gather around the Governor's house when strangers are there, watching everything, the windows and doors being full of faces. All seem good-natured and care-free.

When the Governor was through with the cigarette which had been given him, he would pass it on to his chief assistant,

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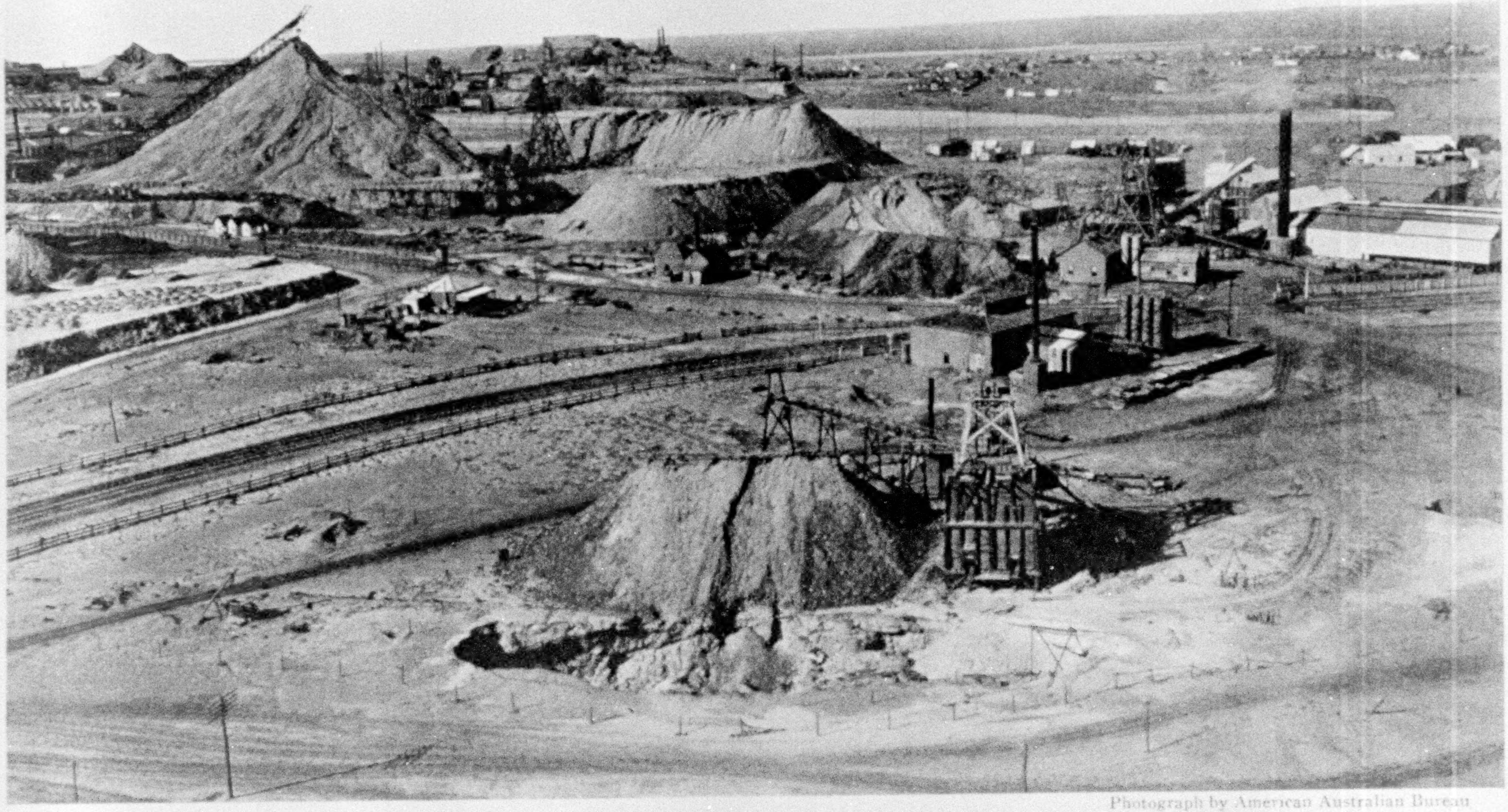
* For detailed descriptions of these images and speculations on their origin, see "The Mystery of Easter Island," by Mrs. Scoresby Routledge, in THE GEOGRAPHIC for December, 1921.



Photograph by American Australian Bureau

"THE GOLDEN MILE," KALGOORLIE GOLD FIELDS, WESTERN AUSTRALIA

Western Australia, like the western United States, owes much of its progress to the discovery of gold. The Kalgoorlie gold fields, discovered in 1893, support 15,000 miners to-day (see text, page 674).

who would take one or two puffs and in turn pass it on to his wife and family, until it was really finished.

We took the Governor's letters and posted them at Buenos Aires, but not one of the various letters left at Easter Island by our party, to be mailed on the next vessel to call, has ever reached its destination. Perhaps they were lost before the arrival of the next steamer, which came about six months later, or the valuable Rapanui stamps may have proved too great an attraction if the letters passed through the mail.

From Easter Island the *Carnegie* proceeded around Cape Horn once more and reached Buenos Aires March 2, 1917. As we had sailed from the United States before the presidential election the previous November, we did not know that President Wilson had been reëlected until we arrived in Argentina.

Owing to the entry of the United States into the war, it was deemed best to detain the vessel there until December, when she began her return trip to Washington, going back around Cape Horn, through the Pacific Ocean and Panama Canal, reaching Washington in June, 1918.

Owing to special duties during the war assigned to the Department of Terrestrial Magnetism, plans for future ocean work were not made until after the close of 1918, and the *Carnegie* remained at Washington, out of commission, until preparations for Cruise VI were begun, in 1919.

NUMEROUS BIRDS BOARD THE VESSEL AT SEA

In October the vessel sailed for Dakar, Senegal, French West Africa. Storms and rain squalls, regular Gulf Stream weather, attended us all the way across the North Atlantic to the Azores.

During this trip a British steamship came out of her course to have a look at us, saluted us with three blasts of the whistle and by dipping her flag, courtesies to which we replied in kind.

We had better weather after leaving the Azores, and during the calms we amused ourselves by dipping up some of the sargasso seaweed from the surface of the water. We would find many small, highly colored crabs, about the size of one's little finger nail, and tiny shrimp hiding in the weed.

Frequently small birds would fall on deck exhausted, having been blown hundreds of miles to sea ahead of some storm. After resting and being given water and food, they would usually fly away again.

A large owl tried his best to land on the deck one stormy day, but was very timid and hesitant because of the people. He would first fly along on the port side and then he would try the other side, frequently becoming drenched by the waves, which also were trying to come on board. At last he flew too far forward, into the down draft to the lee of the foresail, and was blown into the water in front of a huge wave, and disappeared.

Whales were often seen and at times would sport and play about the bow of the vessel, apparently wishing to be neighborly, handling their huge bulk with quick and graceful ease. We overtook one just as he was blowing, and his surprise at our presence and nearness was so great that with a mighty splash he sounded. If he kept up his speed and direction he never stopped until he struck bottom.

A "HARMATTAN" OFF THE COAST OF AFRICA

When more than 120 miles from the African coast, we met a *harmattan*, or sandstorm. The hot easterly winds blowing across the Sahara Desert carry fine particles of red sand far out to sea, filling the air and covering the sails and rigging of the ship with a coat of fine red dust. Moisture collects about each particle, forming a dense fog; the sun cannot be seen until it reaches an altitude of 15 degrees or more, and the horizon is not more than half a mile distant.

Under these conditions the navigator must measure the altitude of the sun from a position as near the surface of the sea as possible, correcting for the nearness of the horizon.

For four days we were sailing through this harmattan, yet we picked up soundings off Cape Verde precisely as expected.

After we had remained "hove to" for 24 hours on account of the fog, the weather cleared for a few hours in the morning, long enough to permit us to make port.

Owing to the presence of bubonic plague in Dakar, 12 deaths occurring daily among the native population, it was con-

Photograph by W. J. Peters

ARGUMENTATIVE ALBATROSSES ON THE DECK OF THE "CARNEGIE"

When captured with hook and line (see text, page 651) and hauled on board, these great birds were prisoners, although never fettered or wing-clipped. They had not sufficient space in which to get the necessary running start preparatory to taking the air. One of the oddities of their life on shipboard was their susceptibility to seasickness, caused by the rolling motion of the vessel.

sidered inadvisable to remain there long enough to carry out any shore work.

The chief article of export from Dakar seemed to be the groundnut, or small peanut, thousands of tons of this oil-producing product being stacked up in the open awaiting shipment to France.

After taking on fresh water and supplies, the *Carnegie* sailed away for Buenos Aires after a short stay of four days.

Skirting the coast of Liberia, we passed within a mile of Cape Palmas and had a good view of the 1919 eclipse station. Sailing on eastward past the Gold Coast, we soon headed south off the Bight of Benin, across the Gulf of Guinea, to pick up the southeast trade wind, after which we had a direct run for Buenos Aires.

TAKING OBSERVATIONS BY STARS AND LIGHTNING

For two nights before entering the River Plate (Rio de la Plata), we were visited by heavy winds and rainstorms from the southwest, called *tempesturas,* frequently met with off the Argentine coast. No sails could be set, and the vessel was driven helplessly in a torrential rainfall, with the wind seeming to shift about in all directions. After a few hours the storm passed to the eastward, and the western sky and horizon cleared.

As we were due to make a landfall the next morning, it was important that we obtain our position that night, in order to steer the proper course for the entrance to the river. Accordingly, observations on two stars were taken and our position was determined at about 1 o'clock in the morning of a dark, moonless night, altitudes being measured when the western horizon was illuminated momentarily by the lightning flashes from the storm receding toward the east.

With the sextant we would "bring the star down" to the point where we assumed the horizon to be, wait for a flash of lightning, and then make a quick setting or measurement of the altitude when the flash came.

Buenos Aires is the Paris of South America, and at carnival time it is a riot of life, color, and gayety. We will not tarry here to add anything to the many descriptions which have already been written of the Argentine capital,* but hurry on to some of the more inaccessible places.

ST. HELENA, WHERE NAPOLEON WAS EXILED AND DIED

En route for St. Helena we met some of our iceberg companions of farther south and passed near Gough Island, that lonely, uninhabited spot in the middle of the South Atlantic Ocean which seems to be one of the homes and breeding places of the wandering albatross.

These regal wanderers along the ocean air lanes seem to care nothing for distance, for we have met them and have had their company in all our cruises in the oceans south of the Equator, no matter how far from land.

Photograph by J. P. Ault

MAKING THE JIBS FAST IN HEAVY WEATHER

As one approaches St. Helena, it seems a barren, unattractive pile of lofty mountains, divided by deep valleys, with its seemingly inaccessible coast-line guarded by cliffs 600 to 1,200 feet in height, giving no glimpse of the beautiful woodlands and green meadows of the upper plateaus.

The harbor at Jamestown is an open roadstead facing the north, and the town is picturesquely located in the narrow valley that makes its way down to the sea between huge masses of overhanging rocks.

Automobiles are not allowed in St. Helena; so, taking horse carriages, we were soon wending our way leisurely up the winding road leading to Longwood Plain, and the view of the town and fertile valley below became increasingly wonderful as we went higher.

In the center of this plain, some 1,800 feet above sea-level, in the midst of pleasing rural scenery, is Longwood House, where Napoleon lived and died. It is a rambling frame structure of about 35 rooms. It is without a single piece of furniture, except that in the front room there is a bust of Napoleon, mounted on a pedestal, to mark the spot where he died.

He was laid to rest in a beautiful shady glen, surrounded with cypresses and lofty Norfolk pines, near a cool spring, where

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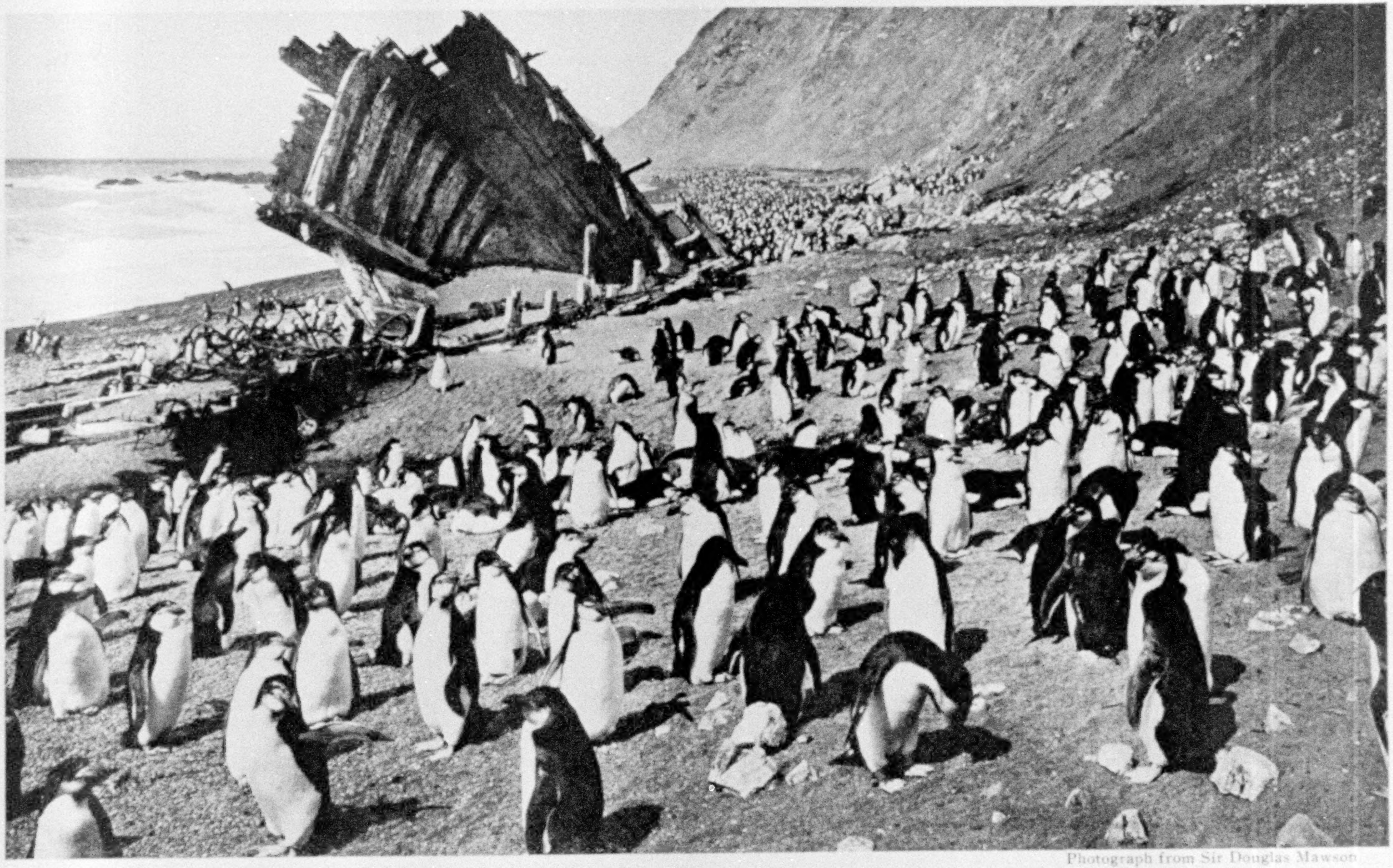
* See "Buenos Aires and Its River of Silver," by William R. Barbour, in The Geographic for October, 1921.



Photograph from Sir Douglas Mawson

ROYAL PENGUINS ON THE BEACH AT MACQUARIE ISLAND, IN THE ANTARCTIC

It is the Royal species of penguin which is killed chiefly by sealers for oil, not because it is fatter than the King, the Emperor, or the Victoria species, but because it lives in larger colonies. One rookery on Macquarie Island occupies an area of more than 16 acres. It is estimated that 150,000 birds are slaughtered annually, but they are constantly increasing in numbers.

he was wont to spend many leisure hours, either alone or in the company of his favorite companion, a nine-year-old child, daughter of a sergeant of the garrison.

Near the grave is the residence of the French consul, whose duties include the care and protection of this burial place, where Napoleon's body remained for nearly 20 years before being removed to France.

As we climb out of the valley and reach the crest of the ridge which stretches across the middle of the island, the continuous cool southeast trade wind reaches a force which turns the branches of the trees backward upon themselves, none being able to grow to windward against the pressure of the breeze.

The view toward the sea, south across Sandy Bay, that huge basin of an extinct crater, is a picture of desolate grandeur, with enormous gorges amidst tumbled masses of rock. The isolated peaks of Lot and Lot's Wife stand out against the western sky.

The chief industries of the island are lace-making and the production of hemp from a species of New Zealand flax. The people were formerly poverty-stricken, there being very little profit in anything that they raised, since there was no local market. This led to the introduction of lace-making, men, women, and children being taught the industry. St. Helena lace has a splendid reputation for pattern and quality.

CAPE TOWN, ONE OF THE WONDER PLACES OF THE WORLD

Our visit to Cape Town emphasized, perhaps more strongly than at any other place, how little we know of a country or of its people before we see them at first hand.

Africa has often been thought a land remote, mysterious, and inaccessible, but Cape Town might well have been a city in our own country and its people our own countrymen, except that very few of our cities could compare with it in its beautiful and unique setting. It nestles in the shadow of Table Mountain, a broad, flat-topped pile of rock with almost perpendicular sides, towering to a height of 3,600 feet and flanked on either side by two conical peaks.

Climbing up the winding road back of the city leading to the mountain top, in the midst of the beautiful silver-leaf trees for which Cape Town is famous, and viewing the town spread out in panorama at our feet with the harbor and crescent-shaped bay beyond, we could not fail to class it as one of the wonder places of the world.

Motoring to the Cape of Good Hope, we passed through fertile valleys, clothed with fruit trees and immense vineyards, where some of the finest fruit in the world is grown.

Standing on the high bluff of the cape, we could look westward over the South Atlantic, southward over the Southern Ocean, and eastward toward the Indian Ocean, and, having in mind the storms which we had met and the ones yet in prospect on these turbulent seas, our thought was that the best place to see the sea is from the shore (see page 673).

The famous summer resort and bathing beach of South Africa at Muizenberg was deserted, at the time we were there, in May, during the winter season of the Southern Hemisphere. There can be no place so dreary as a deserted popular beach, which in season is teeming with pleasure-seekers, but now full of empty spaces and dead seaweed.

As the English and the Dutch are almost equal in number, two languages must be used in all official documents in this province, evident everywhere on road and railway signs and on public bulletin-boards.

We motored to Stellenbosch, with its quaint buildings, the original settlement of the earliest European colonists, French Huguenots. No rain had fallen for several months and a water famine was feared; otherwise the climate reminded us of southern California.

CEYLON, THE GATEWAY TO THE EAST

Our first impression upon landing at Colombo, chief seaport of Ceylon, after our long trip up through the Indian Ocean, was that India is surely sweltering in humanity. This seemed another world, the contrast between the life of the old East and of our own Western civilization being so great.

Here the manner of living has not changed for centuries and perhaps will remain much the same for centuries to

Photograph by Emil P. Albrecht

A STREET SCENE IN PONTA DELGADA, CHIEF PORT OF THE AZORES

There are no thrilling attractions to hold one long in Ponta Delgada, yet there is more to be seen than one can get in a hasty drive. Picturesque old buildings line the clean, well-kept streets.

come. However, the taxicab is trying to replace the old familiar jinriksha, and European and American business firms are increasing in number, due to the demand for the conveniences and luxuries of the Western Hemisphere.

Our glimpse of the interior of Ceylon at Kandy, with its wonderful Temple of the Tooth, its beautiful and famous Peradeniya Gardens, and its historical places of mystic origin, was all too brief.

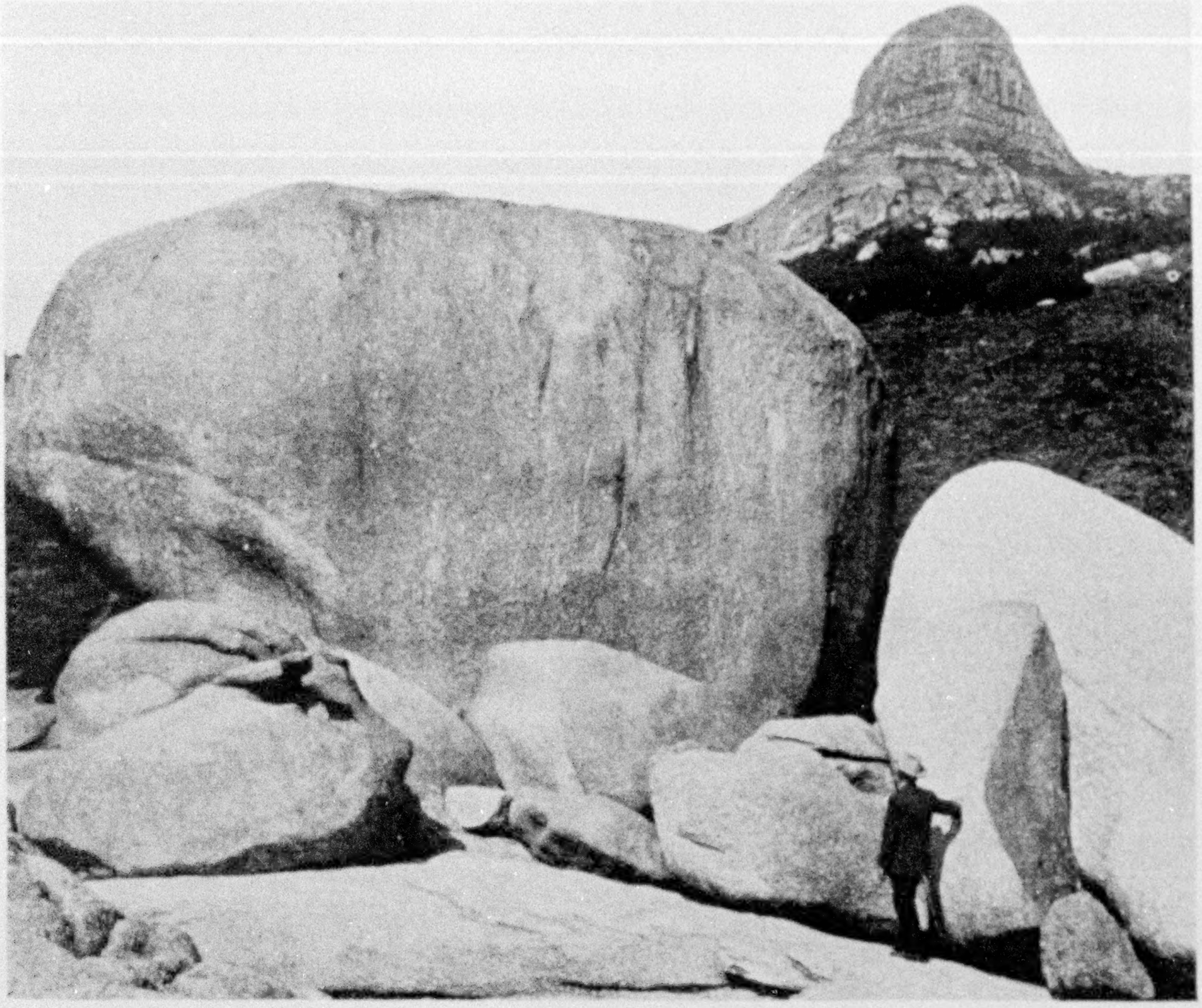
The Hindu boy, using his elephants to haul brush and logs in clearing off a bit of land, spied our automobile coming along the country road. His elephants immediately dropped their burdens at a word from their master and hurried down to the roadside to pick up a few rupees by performing for the foreign visitors.

At Kandy we saw something of the eastern art industries, where exquisite articles of pottery and of beaten brassware are made by hand.

Much to our regret, our time in this fascinating country was too short to include a visit to the ancient capital of Anuradhapura, of mystic origin, surrounded with ruins of images and of ancient temples, of cities, and of gigantic irrigation works.

At Galle, ancient emporium of trade with the East, on the southwest point of Ceylon, we saw the natives cutting, grinding, and polishing rubies, emeralds, sapphires, and other precious stones. They used century-old methods, and manufactured with patient skill beautiful articles of lace and of tortoise shell.

At Kalutara we paused to witness a curious religious procession similar to the Kandy Perahera, a night procession of priests and of sacred elephants, which has been held annually for more than 2,000 years. There were grotesque floats, with huge images of birds and beasts, and sacred elephants caparisoned in trappings of silk and gold. Borne in the midst was the image of Buddha sitting upon the coiled body of a bronze cobra and sheltered under its uplifted, hooded head.



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THE LION'S HEAD FROM LOVERS ROCK AT SEAPOINT: CAPE TOWN, UNION OF SOUTH AFRICA

Living at the Galle Face Hotel, listening to the ceaseless roar of the waves dashing upon the sand, with the monsoon blowing steadily from the southwest, we were much interested in the life about us.

The men, with their curious dress, long hair coiled up on the top of the head and crowned by a semicircular comb of tortoise shell, seemed almost effeminate.

Sitting near the window of the hotel room, having tea and toast in the early morning, one must keep watch on the bold ravens or his toast will disappear if his back is turned for a moment.

The climate can be described as moist and hot, but tempered by cool sea breezes on the coast, the European being under the necessity of protecting the head from the rays of the sun, while the native goes bareheaded and apparently pays no attention to the heat.

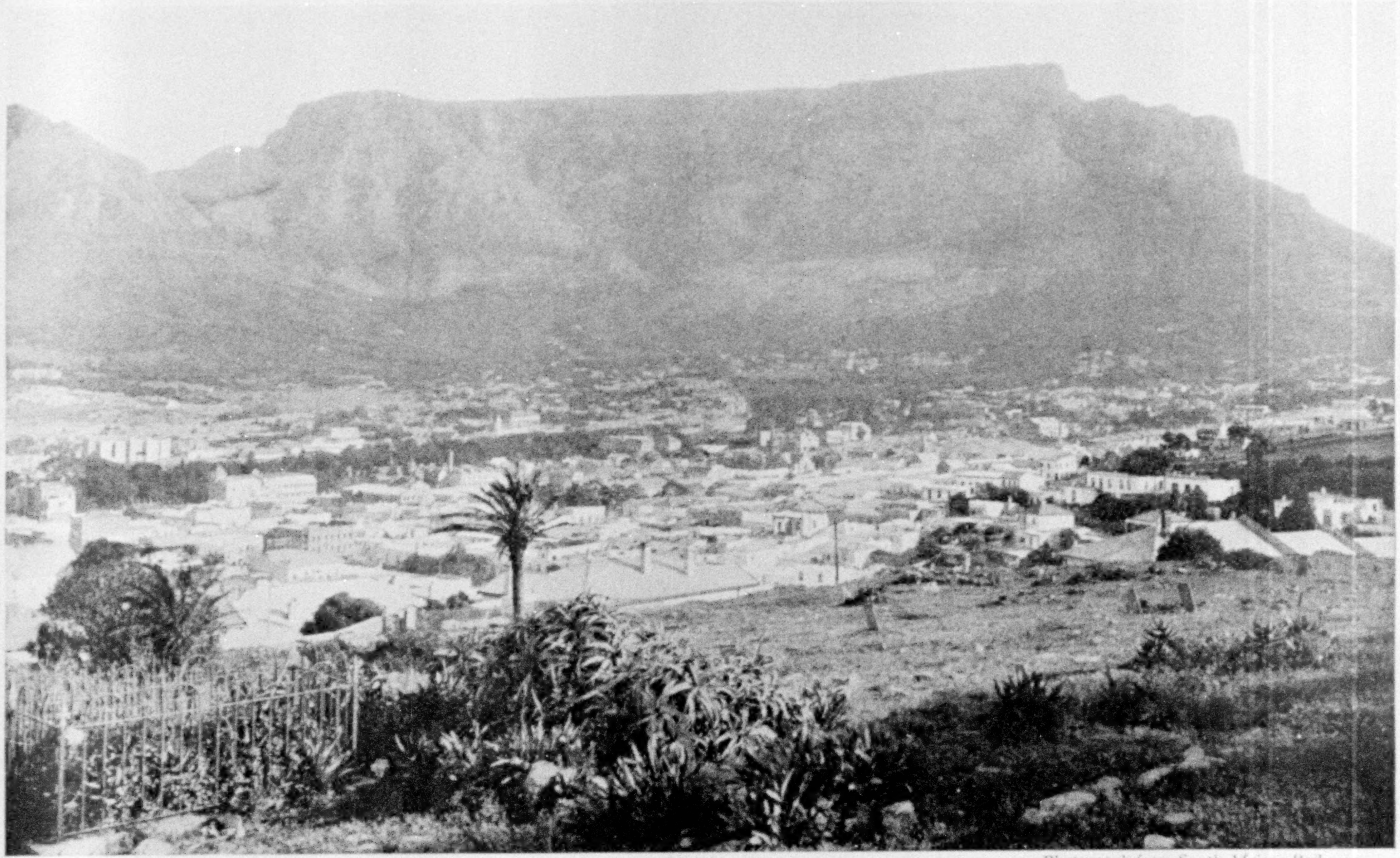
The Europeans are fortunate in having a cool mountain resort in the interior at Nuwara Eliya, within a few hours' train travel, where they may find relief from the heat of the coast.

MAGNETIC NEEDLE SETTLES LAWSUIT

The practical side of our work was emphasized at Colombo. There was a case being tried in court involving the location of a boundary line, and the claimant insisted that the line should be relocated according to the compass variation which existed when the first survey was made. The defendant argued that the compass variation had changed in the interim.

Since we were now repeating our observations at exactly the same spot in the observatory grounds at which we had observed in 1911, we were called upon to furnish our data showing the change which had taken place during the intervening years.

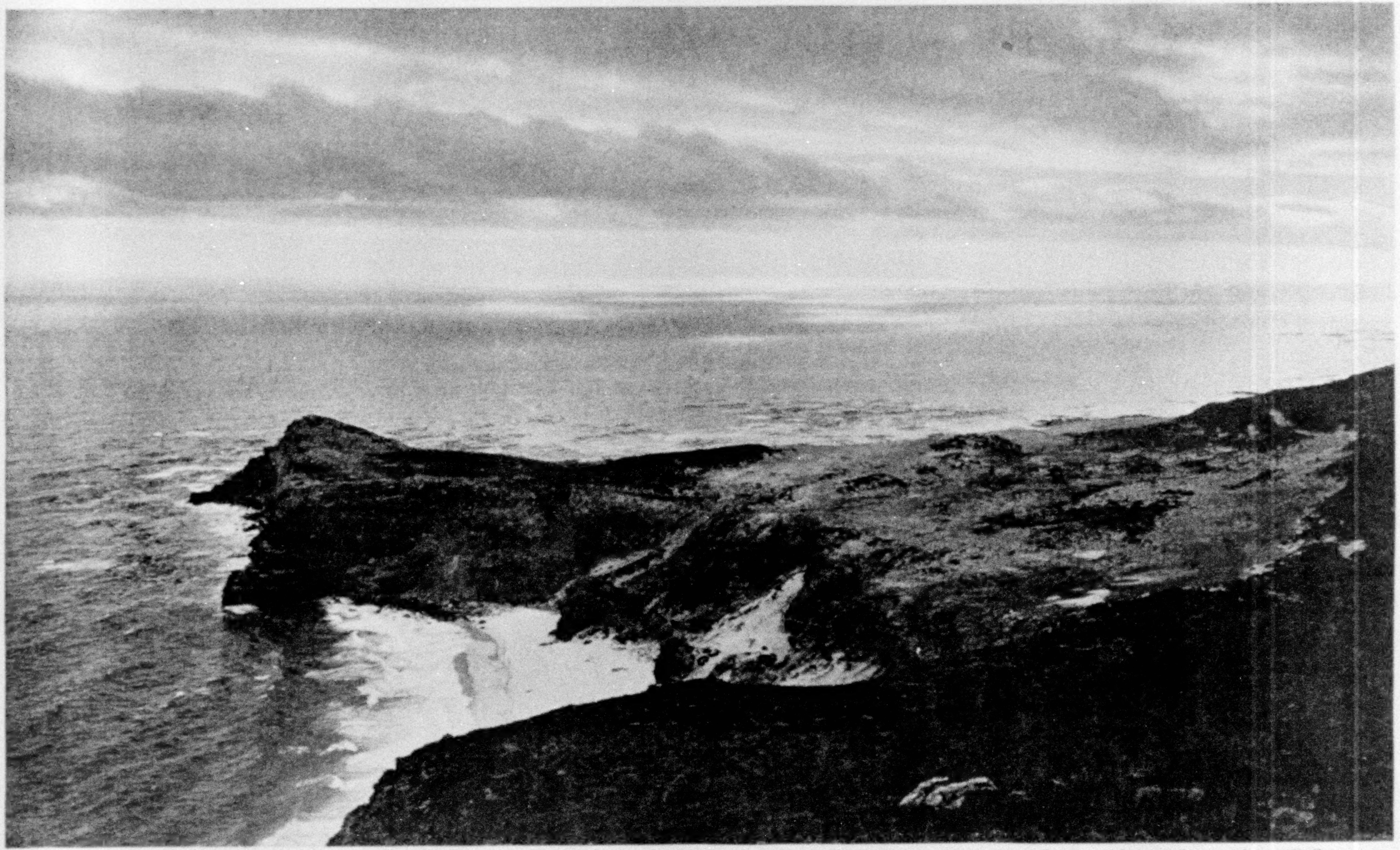
As soon as we had completed our observations and computations, the data



Photograph from South African Railways

CAPE TOWN AND TABLE MOUNTAIN, SOUTH AFRICA

Nestling at the foot of a perpendicular pile of rock which rises to a height of nearly 3,600 feet, the capital of the Province of the Cape of Good Hope, Union of South Africa, is one of the most picturesquely situated cities in the world. It has a mean annual temperature similar to that of Nice and the Riviera.

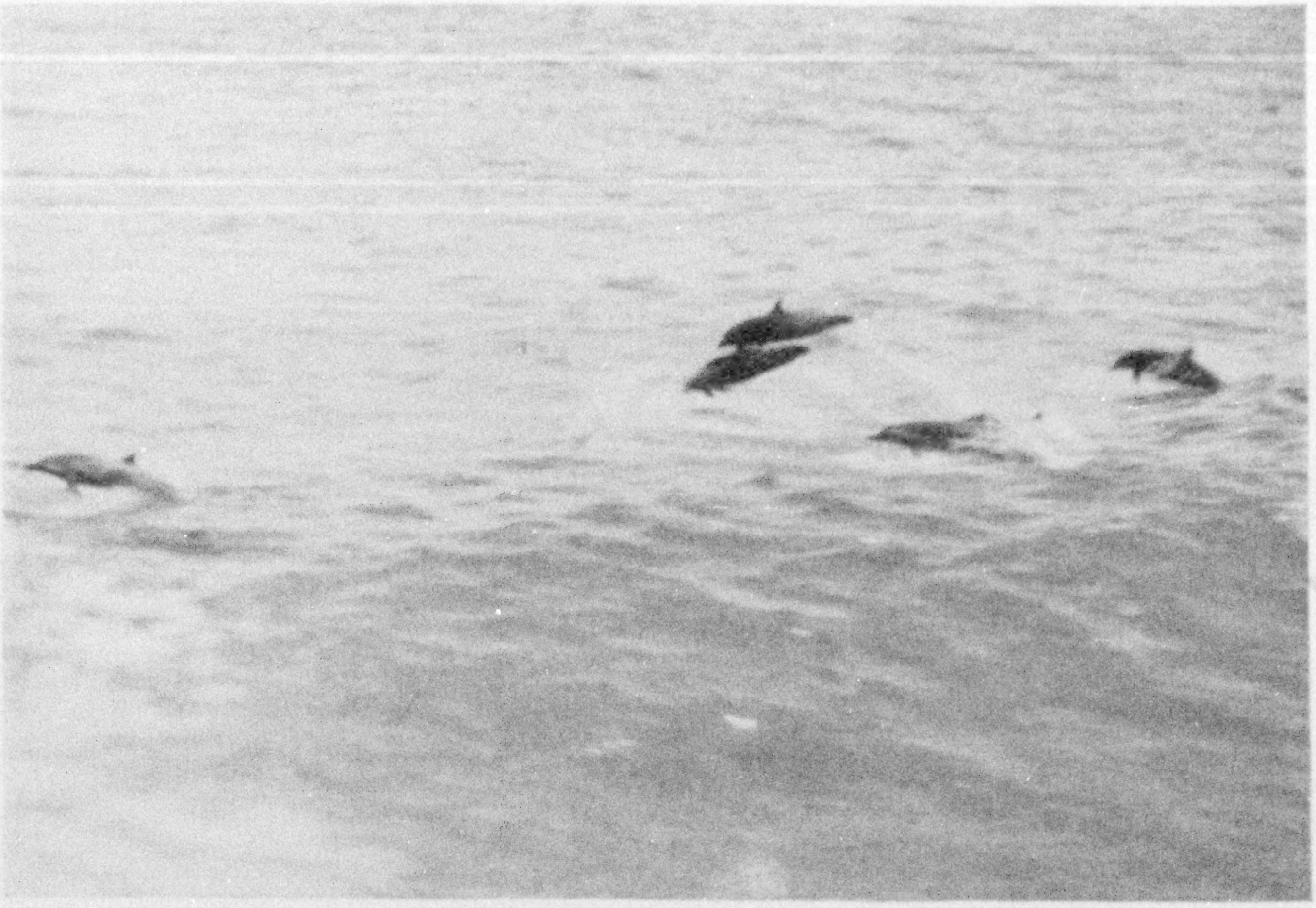


Photograph from South African Railways

THE CAPE OF GOOD HOPE

There are a few spots on the Earth's surface whose very names conjure up mental pictures of romance, of adventure, and of high endeavor. The "North Pole," the "South Pole," "Cape Horn," and the "Cape of Good Hope" are among these. History tells us that when Bartholomeu Diaz returned to Portugal after reaching this, the southwestern extremity of Africa, he gave it the name of the "Cape of Storms," but his Portuguese monarch, King John, was too clever a publicity man to handicap the discovery with such a title; he changed it to the "Cape of Good Hope."

XUM



Photograph by M. L. Patterson

PORPOISES AT PLAY OFF THE COAST OF ARABIA, NEAR SOCOTRA

(For an account of Socotra, the unique island from which the world gets its frankincense, see THE GEOGRAPHIC for March, 1918.)

were taken to the surveyor general for the information of the court. The greatest annual change in the compass pointing was found in the South Indian Ocean, where it amounted to as much as 21 minutes per year.

WESTERN AUSTRALIA RESEMBLES WESTERN UNITED STATES IN PIONEER DAYS

Our visit to Western Australia reminded us of our own western United States in the early days. This is a new country, the active settlement dating back to the discovery of gold in 1885, but agriculture was not begun to any extent until 1903 and 1904.

The history of Australia thus resembles that of the United States. Settled first in the east, the west, reached only by water routes, was little known until the discovery of gold caused a rush of settlers and prompted the building of a transcontinental railroad.

We were impressed with the beauty and profusion of the wild flowers, all of which were unknown to us in the United States. These included the wattle, which blooms in many varieties; the fragrant baronia, the red and green kangaroo paw, the many different kinds of orchids, the wax flower, and the everlastings, which mantle the country for miles at a stretch.

The interior of Australia contains no mountain ranges of any size, has no watershed, and until the water supply problem is solved, this part of the country will remain practically nonproductive. Thus, at the famous Kalgoorlie gold mines, two cities, with their thousands of people, are dependent for their water upon a supply pumped up from a reservoir near the coast, at Perth, through steel pipes, over a distance of about 350 miles.

We visited the magnetic observatory of the Department of Terrestrial Magnetism at Watheroo, in the midst of a sandy plain, where the emu, the kangaroo, and the wallaby roam at will.

Wandering over this sandy waste, in the midst of scrubby trees and bushes, trying to shoot the swiftly moving kangaroo, we would pause in wonder at the beautiful orchids smiling up from the sand at our feet.

The kangaroo is difficult game for the hunter on foot, as he travels rapidly and offers a target only when he appears above the bushes at the top of his leap. The usual method is to hunt him with dogs and on horseback.

We visited the hardwood lumber industry in the huge gum and jarrah forests along the coast and saw something of the fruit-growing and farming regions.

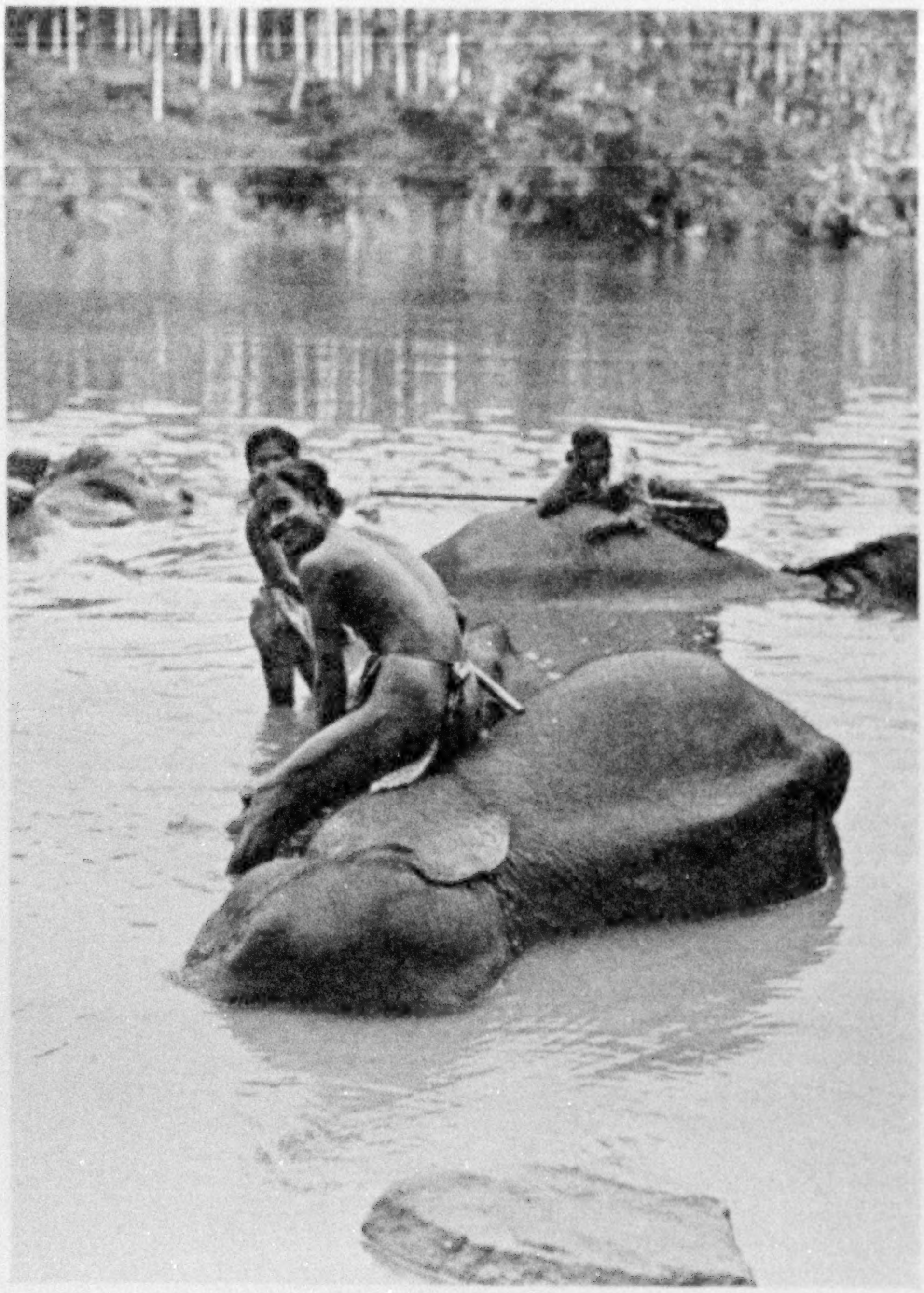
The annual rainfall, 90 per cent of which comes in the winter months — from April to October — ranges from 40 inches along the coast to less than ten inches in the interior, diminishing rather regularly from the coast inland. Yet with a rainfall of only ten inches, equally distributed from May to October, enormous crops of wheat are grown with profit, and the acreage planted in grain is increasing rapidly.

On leaving this democratic country, where the people were extremely cordial and unusually interested in our work, we felt that, while the progress of Western Australia as an agricultural country has been rapid, in view of the brief 16 years of intensive activity, yet its possibilities have scarcely been touched, and it is destined to become one of the great countries of the world.*

Cape Leeuwin maintained its reputation as a stormy and dangerous region. For 12 hours we were skirting this circular coast too near for comfort, in a heavy southwest gale, with high seas running, and the wind hauling ahead slowly during the day, just sufficient to keep the vessel within a dangerous distance from shore.

Thirty minutes after we finally cleared the rocks off the cape and were out in the open Southern Ocean, the gale died out to a calm, as though baffled of its prey.

Royal Company Islands, formerly reported as existing at latitude 50 degrees south, below the eastern end of Australia, have joined that numerous company of lost islands of the sea. We passed over



Photograph by Maynard Owen Williams

CEYLON ELEPHANTS BEING GIVEN THEIR DAILY BATH

These beasts of burden require careful treatment to prevent their hide from cracking and chafing. They are scrubbed daily with coconut husks and water.

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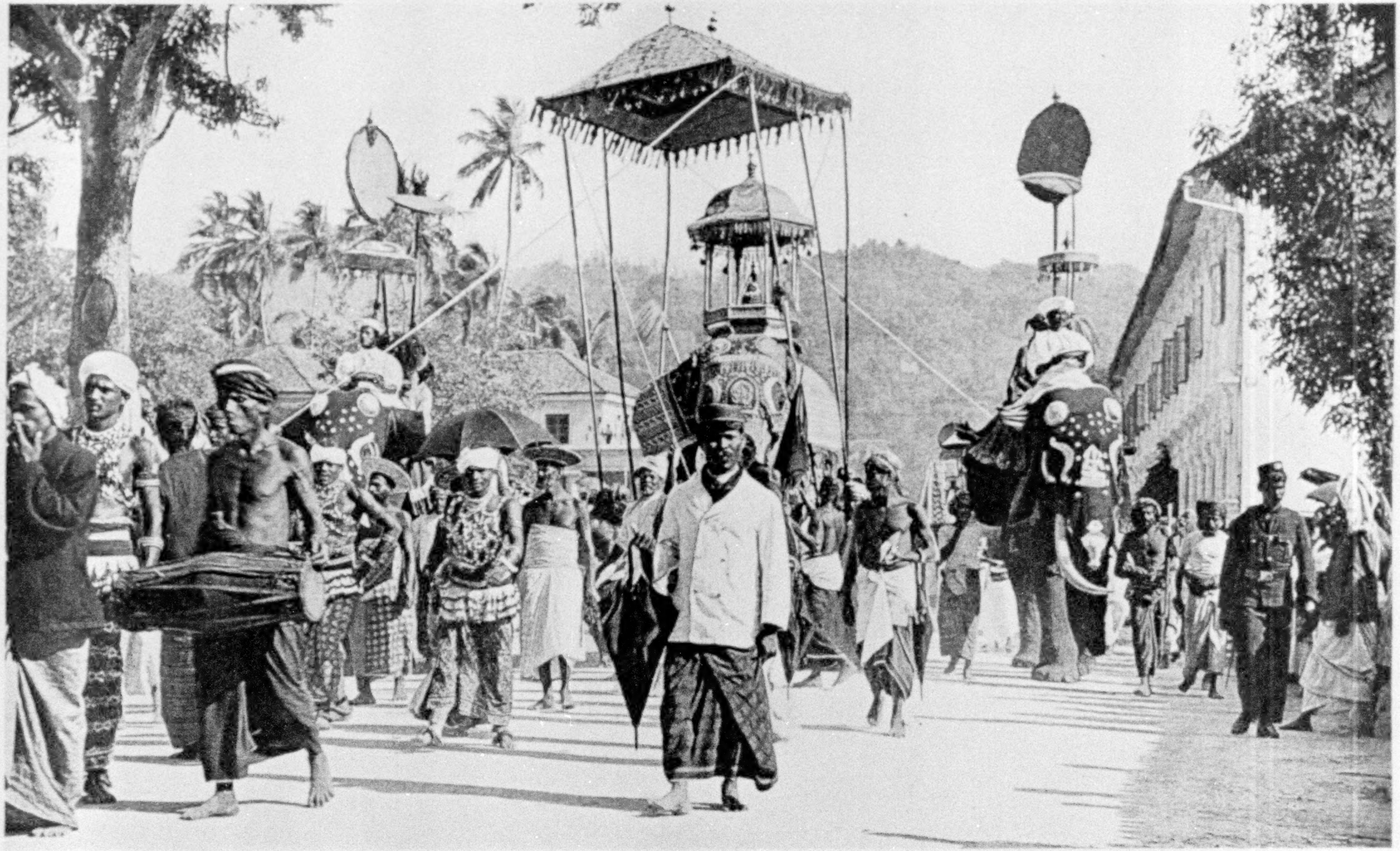
* See, also, "Lonely Australia, the Unique Continent," by Herbert E. Gregory, in The Geographic for December, 1916.



Photograph from Plâté's Photographic Trade House

THE ANNUAL PERAHERA, OR BUDDHIST FESTIVAL OF CEYLON

Through the streets of Kandy and earlier capitals, the holy tooth of Buddha has been carried on the back of the finest elephant in the temple stables every year for twenty centuries. Until recently, the procession was always held at night, with lights from thousands of flickering torches cast upon the glistening features of the devil dancers and the rich trappings of the sacred beasts.

their reported position, but could see no signs of land.

Calling at New Zealand before beginning our year's work in the Pacific Ocean, we enjoyed meeting again our friends at Lyttelton and at Christchurch.

Proceeding up through the Pacific, we stopped for a few days at Papeete, Tahiti, Society Islands, where we spent Christmas and New Year's, 1920-1921. Much has been written about this mystic isle of the tropics, with its generous, openhearted people, its wonderful tropical scenery, its lofty mountain minarets, green-clad to the summits, an island which seems to be the mecca of artists, authors, and poets, of scientists, bird men, bug men, and ne'er-do-wells.

Proceeding northward, we decided to call at San Francisco for repairs and recalking, as the vessel was leaking considerably. The route passed near Fanning Island, a coral atoll, where we stopped for a few hours to send cablegrams.

THE ROBBER CRAB CLIMBS TREES AND GATHERS COCONUTS

We recalled our visit here in 1905 and 1906, when we first saw the coconut or robber crab, known locally as the Fanning Island flea, brilliantly colored with mottled red, with a spread of 24 inches between the tips of its claws and a body 12 inches long. It lives on coconuts and climbs the trees to sever the stems, allowing the nuts to fall to the ground, some 40 feet below. It then descends the tree, and with its powerful claws slowly tears the husk from the nut until the shell is exposed at the end where the three holes occur.

Breaking the shell with a few quick blows of the heavy claw, it is soon enjoying a feast of the luscious white meat of the nut.

The natives often hunt the crab by weaving an obstruction of palm leaves around the tree trunk about 20 feet from the ground. As the crab backs down the tree and comes in contact with the obstruction, it lets go its hold, as if the ground had been reached, and is crippled or killed by the fall.

Some of these crabs were brought on board, but the barefoot sailors objected to their being allowed the freedom of the deck.

Fanning Island is nowhere more than eight feet above sea-level, and each of the 25 or 30 English cable operators living there has his coconut tree picked out as a refuge in case a tidal wave or heavy storm should visit the island.

DESERTED LAYSAN ISLAND RECHARTED

Sailing northward, we passed within half a mile of Laysan Island, in the western Hawaiian group. This is a small sandy island, noted in the public press a number of years ago because of the slaughter of the sea birds which make it their home.

No one was on the island when we passed. The sand was heaped up to a height of 50 feet at one place and there were only two trees and a few low bushes growing. The island appeared as a thin white streak on the horizon when first sighted. We had been expecting to sight land for about an hour before it appeared, so we knew that it was wrongly charted. By careful observations, we found it to be about four miles north of its assumed position.

Our route called for a swing up into the North Pacific Ocean before turning eastward for San Francisco, and, as it was winter time, we found stormy weather awaiting us.

HURRICANE TEARS SMALL SAILS TO RIBBONS

The vessel was leaking so badly now that very few sails could be set if a heavy sea was running. While hove to in a strong gale about 300 miles off San Francisco, the center of the storm passed over us and for about five minutes the wind blew with hurricane force. The vessel trembled and shook as if some giant hand were trying to thrust her down beneath the mountainous seas which were tumbling upon her decks, and with a terrific explosion both the small sails which were set were torn to ribbons.

After the necessary repairs had been made at San Francisco, we were soon on our way to the Hawaiian Islands, where we spent some time.*

One of the most interesting experiences during a trip through the South Pacific

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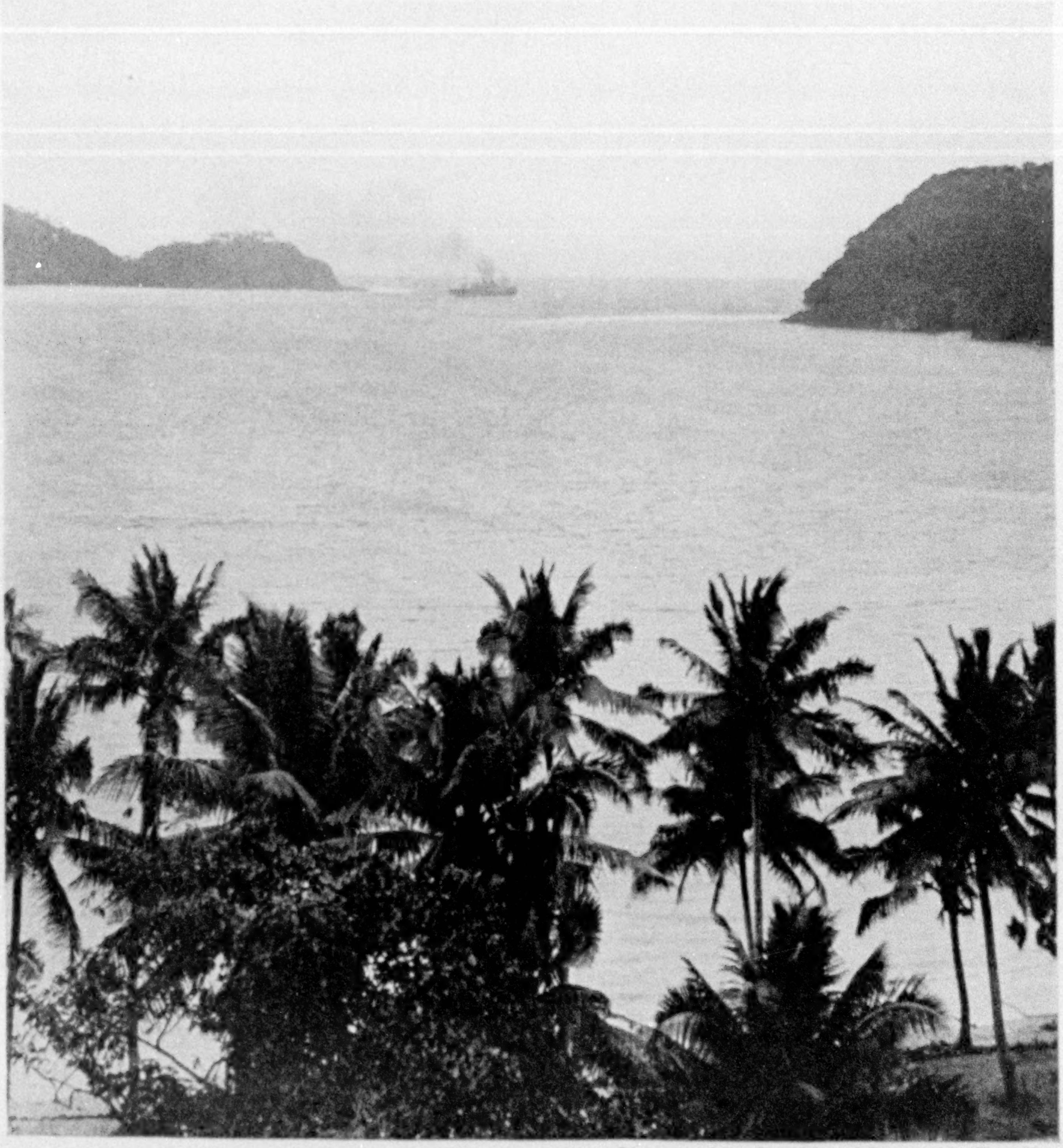
* An entire number of THE GEOGRAPHIC, with many illustrations in color, will be devoted to the Hawaiian Islands in the near future.



Photograph by Dr. Edward Burton MacDowell

ENTRANCE TO PAGO PAGO HARBOR, U. S. NAVAL BASE IN THE SAMOAN ISLANDS

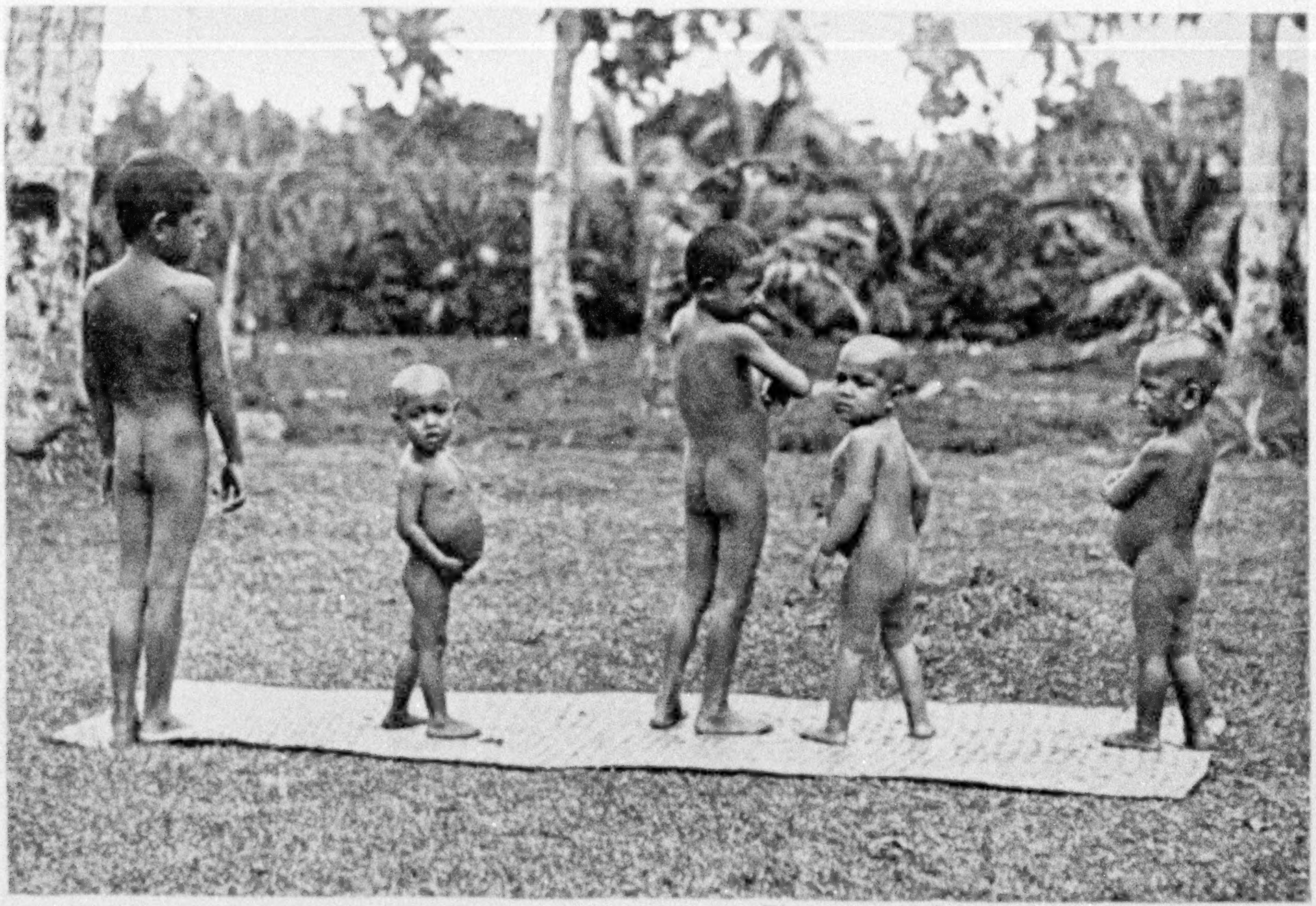
This harbor on the island of Tutuila occupies the crater of an extinct volcano and is one-and-a-half miles in length and three-quarters of a mile wide. The entrance from the sea is a very narrow channel.

Ocean is a call at an out-of-the-way coral atoll, a circular strip of white sand and coral about a quarter of a mile wide and ten feet high, surrounding a lagoon of quiet water. When first sighted, it appears as a long, dark fringe on the sky-line, but as we draw nearer this fringe grows larger and higher, until it resolves into a grove of coconut trees apparently growing up out of the sea.

Making for the opening into the lagoon, we are accompanied by a continuous procession of huge waves, with smoking crests, marching upon the shore, and we hear the ceaseless roar of the surf as it pounds upon the fringing reef.

A PICTURE OF PLACID LIFE ON PENRHYN ISLAND

We find the native living in his thatched hut, nestling beneath the dreamy fronds of the coconut palms as they murmur ceaselessly in the warm caress of the tropic trade wind.



Photograph by Dr. Edward Burton MacDowell

BANANA STOMACHS IN SAMOA

This seems a page from romance, a paradise of climate, a place dreamed of but seen by few, a memory to soothe one's troubled spirit for years, a place where thoughts may wander from the strenuous life in the midst of rushing civilization.

Such a place was Penrhyn Island (Tongareva), one of the northern islands included in the Cook group, which we visited for a few hours one day in June, while en route from Honolulu to Samoa. Rarely do they see a vessel other than the trading schooner, the *Tiare Taporo,* which calls every six or eight weeks and which was then in port.

The island is about 12 miles long by seven miles wide, yet the narrow, circular strip of land surrounding the lagoon supports 400 natives. Eight white men were living there, engaged in trading or as government officials.

As soon as the *Carnegie* approached the island, one of the traders was able to recognize her, explaining that one of the two or three magazines to reach the island the previous year had described the vessel and her work and had shown her picture. The magazine had been re-read several times, and he had puzzled greatly over the absence of iron in the *Carnegie's* construction, being especially curious as to how an engine could be built mostly of bronze and copper.

After the magazine was finally discarded, and when searching for some paper with which to wrap articles sold to the natives, the pages describing the *Carnegie* showed up again. Then one Sunday morning this vessel, of all the ships of the sea which might have visited the island, comes gliding smoothly up to the entrance to the lagoon, with all sails set, like a huge white swan!

TRAGEDIES IN THE SOUTH SEAS

Going ashore for lunch, we were treated to fresh eels, fresh roast pork, string beans, fresh shrimp salad, and Rarotonga oranges. Then we wandered around the village and along the shore, saw the little church where all the natives were attending services, and visited the unique graveyard, with all the graves whitewashed to keep out the evil spirits.

One of the graves was very elaborately built with a huge canopy over the top like a bed, surrounded by an ornamental iron fence and the whole inclosed with an Eng-

Photograph by Dr. Edward Burton MacDowell

A SOLITARY FIGURE ON THE STRAND NEAR POINT VENUS, TAHITI

lish hedge. At the foot of the grave was a glass jar containing pieces of cloth, with needle and thread, so that the sleeper would be able to make his own garments when he awakes.

In contrast to this well-kept, elaborately decorated grave was one in another part of the cemetery, with a plain headstone marked "R. F. 1882." Yet beneath that simple epitaph lies hidden the tragedy of one poor woman's life.

A white woman of gentle birth and refinement, whose husband died of consumption, was left without friends or relatives and with no means of livelihood. She was forced to marry a native. This meant loss of caste and virtual burial alive; so she wished to guard her degradation from public gaze, even after death, and at her request this simple inscription was placed over her grave.

The resident agent of the New Zealand Government had been at Penrhyn for over 33 years. He was a sailor on a vessel which was wrecked on the reef outside the lagoon one midnight, as she was sailing along peacefully with a steady breeze and no thought of danger ahead.

He was in the first boat launched, as was also the captain's wife. The boat

Photograph by Dr. Edward Burton MacDowell

SURF BATHING HAS ITS DELIGHTS FOR MAN AND BEAST IN TAHITI

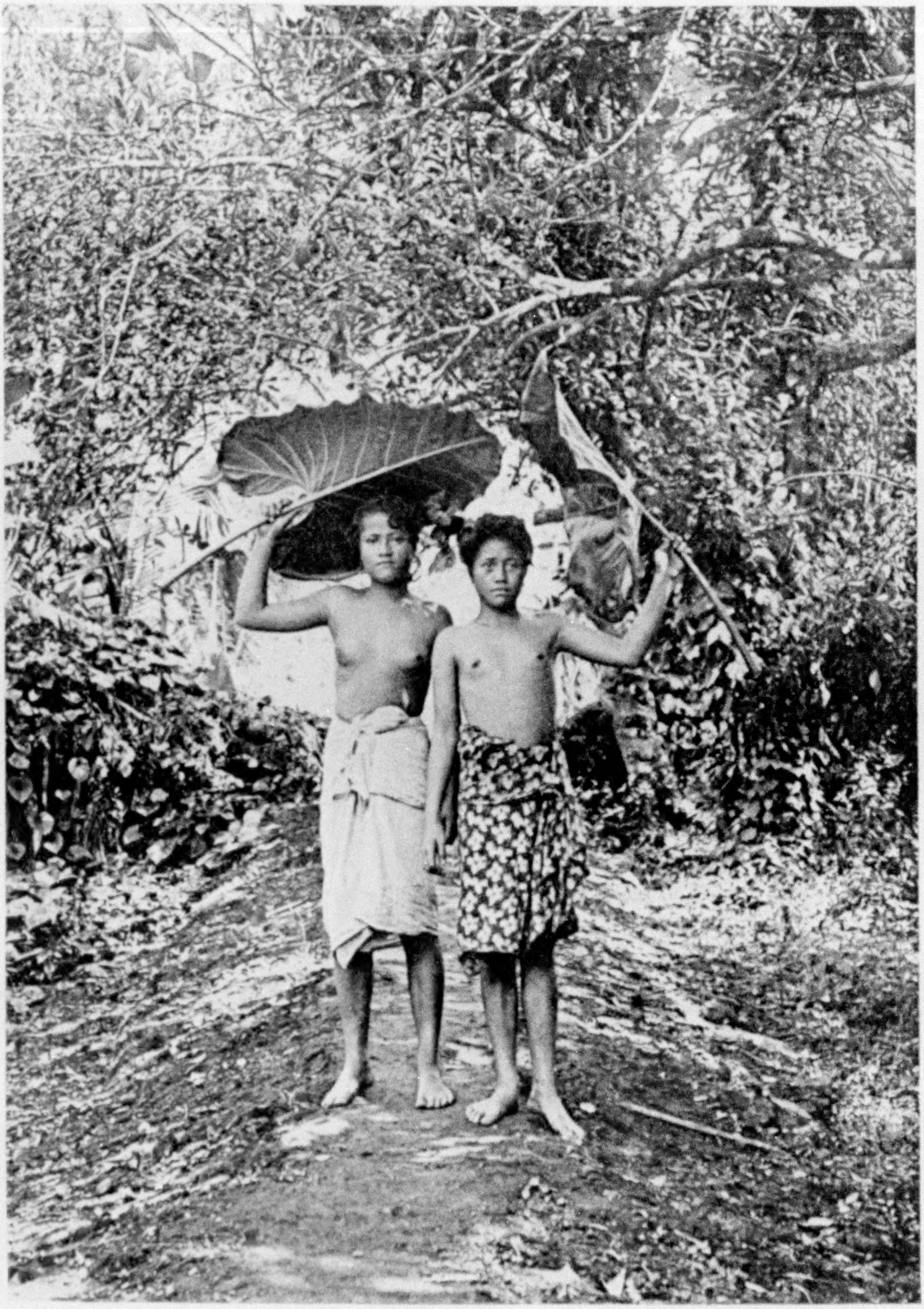
was overturned in the surf as they tried to get through the breakers to shore, and he was the sole survivor, clinging to the keel of the boat when it finally drifted onto the beach the next morning. He could not swim, as is so often the case with deep-water sailormen.

Here we also met a gray-bearded half-caste, one of the sons of the founder of the colony on Palmerston Island. Years ago the father, with his three wives, journeyed to this isolated paradise in the Pacific, and now there are more than 100 direct descendants living in the colony.

Three days later we called at Manahiki Island, less than 400 miles distant from Penrhyn, yet the people are quite different. The white buildings, with their red roofs, stood out in sharp contrast to the green of the coconut palm grove background, as seen from the open roadstead.

The resident agent came out to meet us in his small, shallow boat, with a huge black and yellow flag flying at the stern. The flag had no particular significance, he said, but some skipper had given it to him and he thought it looked fine. He said it was a Scotch flag!

After we had entertained the agent, his son, and one of the traders at luncheon,



Photograph by Dr. Edward Burton MacDowell

THE TAUPO'S MAID OF HONOR AND WAITING MAID, 13 AND 14 YEARS OLD, RESPECTIVELY

The Samoan *taupo*, or village maiden, is indispensable to the village chief. To her belong such traditional duties as leading the official dances and looking after the comfort and entertainment of distinguished visitors. She lives in a house of her own and is attended by several handmaidens, chosen for their beautiful faces and figures and ability to dance.

Photograph by Dr. Edward Burton MacDowell

DRYING VANILLA PODS IN TAHITI

we went ashore, first sending one of the native boats ahead to start fishing operations, as we had expressed a desire for some fresh fish.

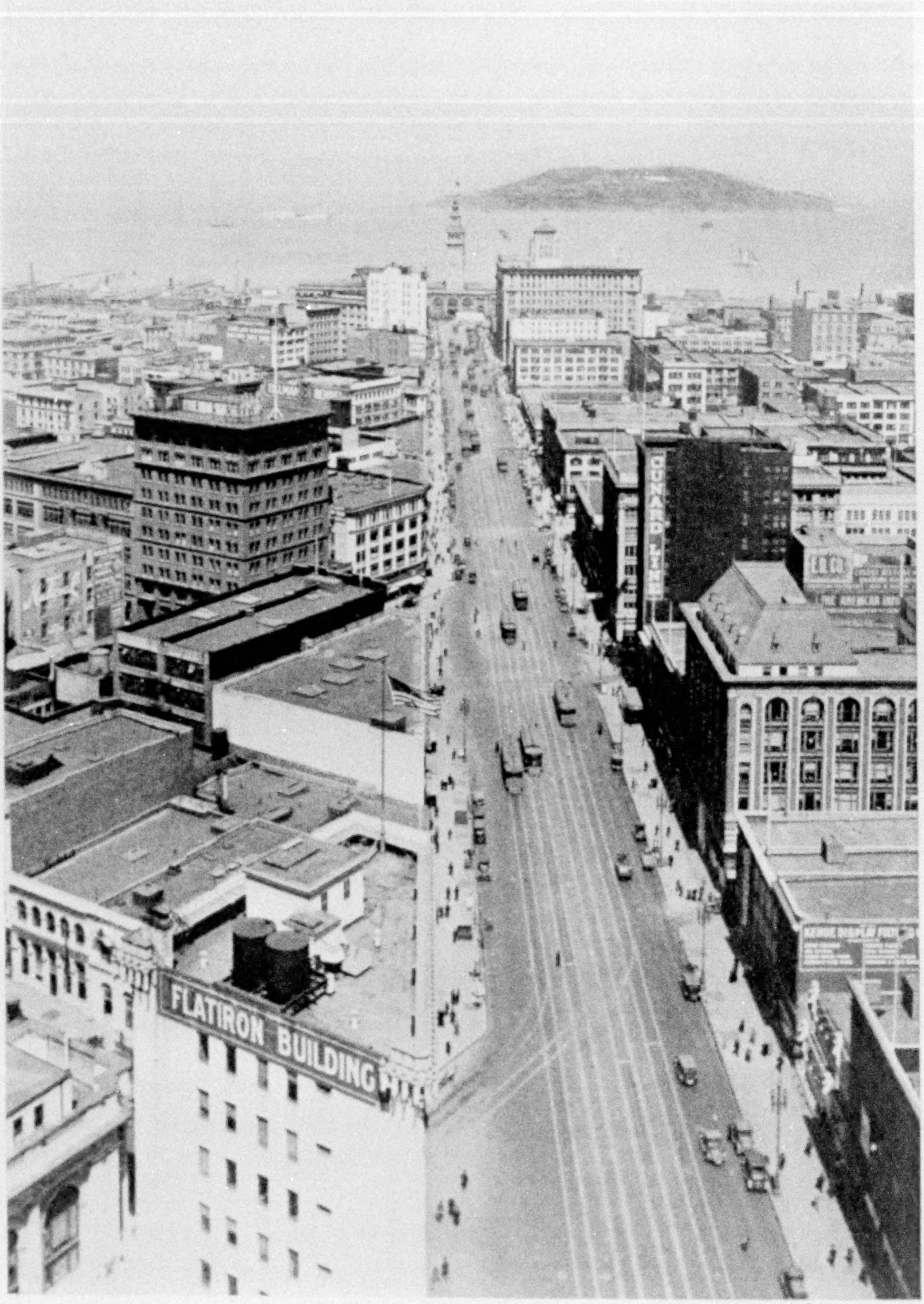
On the way we passed two natives fishing from a canoe. One remains in the canoe while the other dives. After he gets down a few feet, he spits out his mouthful of bait and, holding his hook on a short line among the fish, which immediately come in large numbers for the bait, he suddenly jerks the line, snags a fish, and then brings it up to the canoe. Other fishermen went along the shore and with small spears and nets caught a string of fish for us.

The natives were all at the landing place to meet the strangers and were eager to have their pictures taken.

FOOD SHORTAGE AT MANAHIKI

The trading schooner had not paid the island a visit for more than six months, and the natives were short of food. They wanted flour most of all, and we noticed that the agent and party were unable to get enough crackers, or soda biscuits, at lunch on board. We gave them several large tins of biscuits and a good supply of tinned meat and some tins of milk.

They had begged for a tin or two of milk for the babies. One baby had lost



© Elmendorf

LOOKING DOWN MARKET STREET, SAN FRANCISCO, TOWARD THE BAY

This, the principal business thoroughfare of California's great seaport, is more than three miles long. The ferry station (with the tower) at the end of the street is the busiest in the world, more than 50,000,000 persons passing through it in one year.

XUM

his mother and had nothing to eat. These islanders love babies and often adopt another's child as their own; so a little one may have three or four mothers.

When the supply ship is a long time coming, the diet of fish and coconut becomes very tiresome. Their supply of tobacco was exhausted also; so brisk trading went on.

The people are bright and healthy looking and seem very industrious, making excellent hats, mats, fans, and baskets.

The island was swept by the sea in 1914. There was no wind, but about four o'clock in the afternoon enormous waves began marching upon the beach. All the houses on the narrow strip of land were soon swept away, and the people had just sufficient time to launch their large boats in the lagoon, where they spent the night, riding out the storm in safety, with their boats tied with long ropes to the larger coconut trees. When we arrived they were just getting their houses rebuilt with lumber brought from New Zealand.

A NATIVE DANCE ARRANGED FOR THE VISITORS

The natives arranged a dance for us. This is their one form of amusement and entertainment. They had a regular team, ten boys and ten girls, who went through an elaborate dance in perfect unison. One of the boys was the leader and announced the changes on a boatswain's whistle, while the time and music were furnished by a band of men and boys beating on weird drums and wooden resonators, whose loud, shrill notes could be heard for miles.

Each dancer stands alone, and the evolutions depend largely upon the suppleness of ankle, knee, and hip.

As we were leaving, after distributing gifts of tobacco, food, and clothing, the natives lined up to shake hands, loading us with gifts of pearl shells, mats, fans, and strings of beads, some even giving us the hats they were wearing. The girls gave us their bead necklaces.

The chief industries on these islands are the gathering of the nuts from the dense groves of coconut palms which cover all the visible land, making the copra, and diving in the lagoons for pearl shells. Some bananas and papayas were growing near the village and nearly all these islands have their pigs and chickens.

We arrived at Apia, Western Samoa, late in June, after stopping for mail and supplies at Pago Pago. The Western Samoan Islands are now under the mandate of New Zealand, and a visit to the magnetic, meteorological, and atmospheric-electric observatory located at Mulinuu, just outside of Apia, was the chief object of our stop here.

We were entertained in Robert Louis Stevenson's old home at Vailima, which is now the Governor's residence. We went swimming by moonlight in the artificial pool which Stevenson had built in a beautiful place back of his home, hollowed out in the bed of the shady mountain stream of clear, cool, sparkling water, just at the foot of a little cascade, where one may play in the caress of the natural shower, pulled and tugged by the strong, yet gentle hands of the falling water.

A gate has been built in the retaining dam, so that the pool may be filled or emptied at will.

Almost overhanging this pool is a mountain which was Stevenson's favorite haunt, the crest overlooking his home and facing a beautiful outlook over the town, harbor, and coast. The winding pathway leading to the top is steep and is overhung with tropical vegetation.

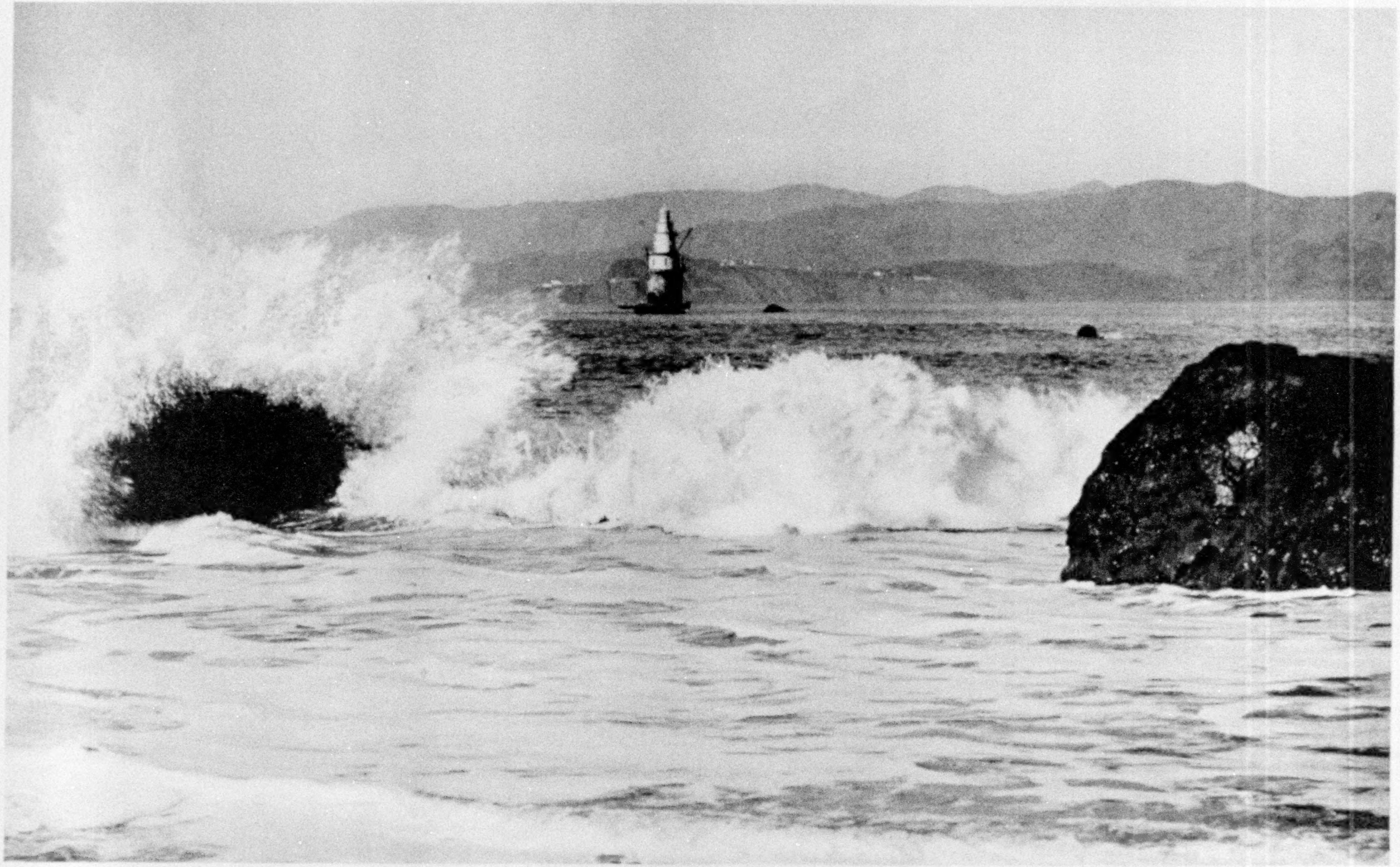
At the very summit, in a little cleared space, in the midst of this tropical jungle, surrounded with beautiful red hibiscus blooms, Stevenson and his wife lie buried.

UNIQUE FISHING METHODS

During our leisure moments we visited the "jumping rock" and joined the native girls in their running leap from the bank far out over the stream, to plunge 40 feet to the surface of the deep pool below, at the foot of a waterfall.

We wandered out over the coral reef and watched the natives fishing. One would hold a short net over the outer end of an opening in the reef, while his companion would drive the fish into the net by thrusting a long pole into the water as he walked along one side of the opening.

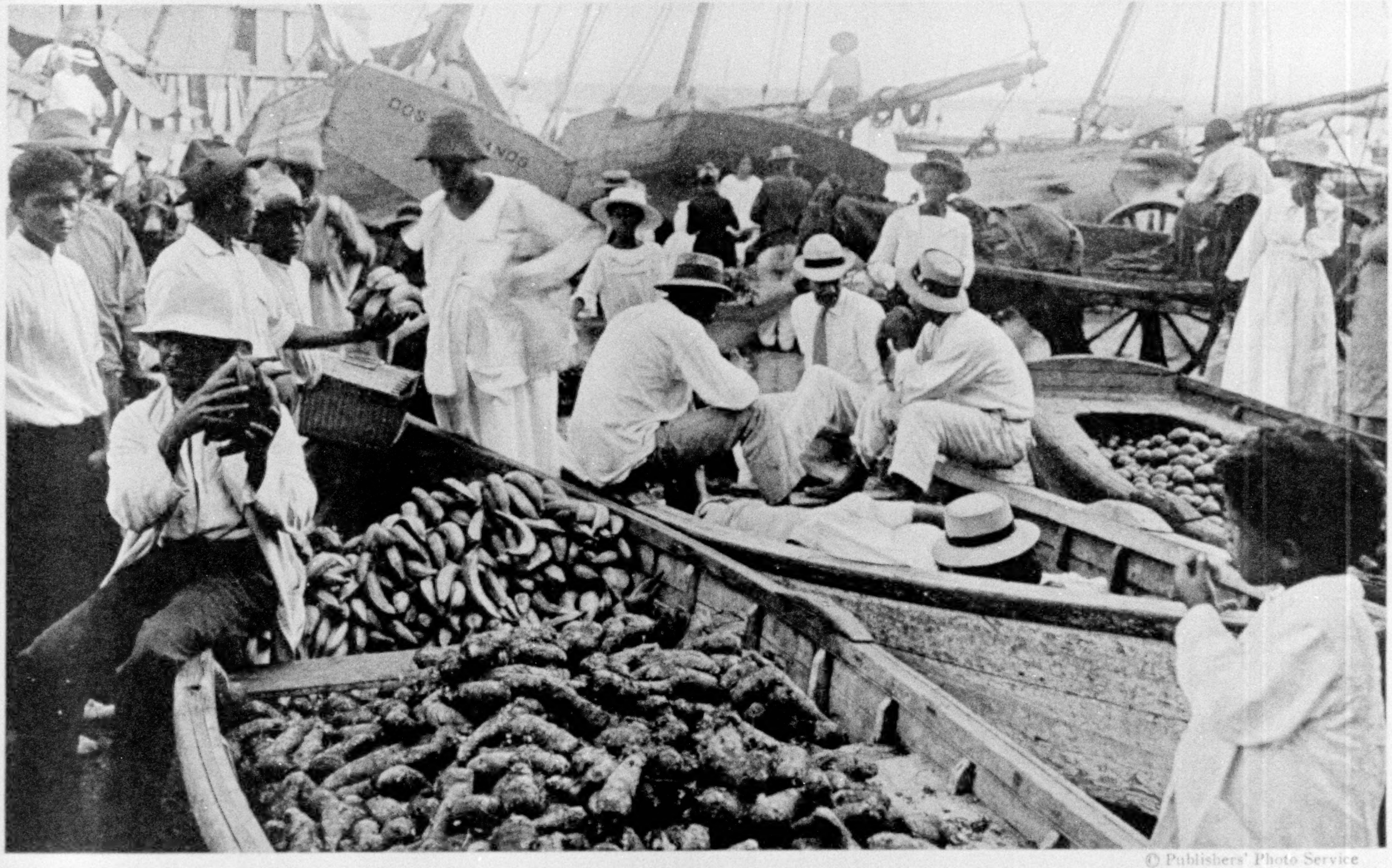
The women were hunting among the small cracks in the reef for cuttle-fish, which they consider a great delicacy. Armed only with a long, sharp stick, they



Photograph by Putnam and Valentine

THE LIGHTHOUSE AT GOLDEN GATE, SAN FRANCISCO

Much of the romance, commerce, and adventure following in the tracks of the Pacific trades passes through this mile-wide strait. Chrysopylæ, or Golden Gate, was the name given it by Frémont in 1848.



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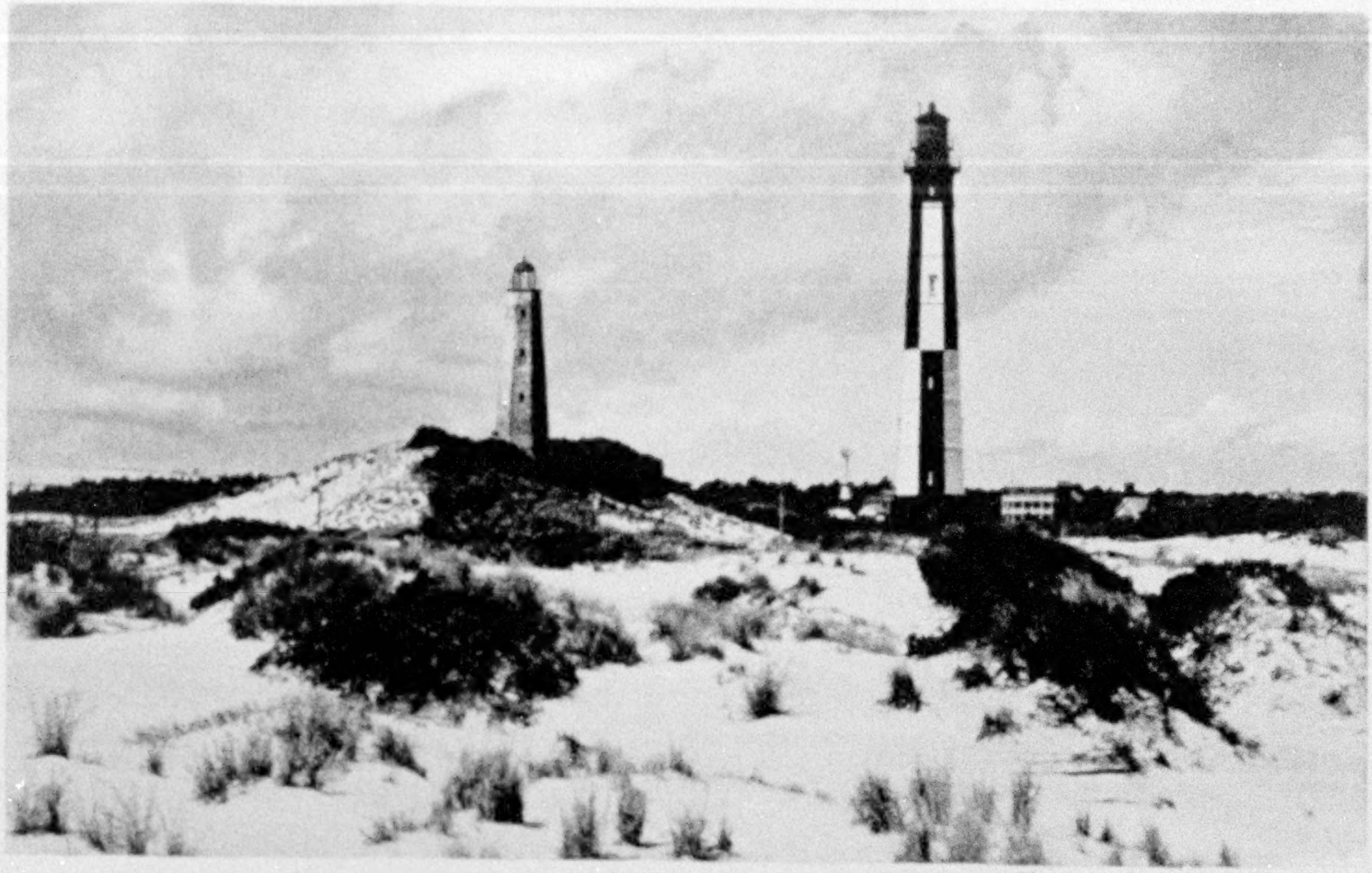
THE BOAT MARKET IN PANAMA CITY

The waterfront at Panama City is a scene of picturesque confusion. Its trade has always been important, especially so since the completion of the Panama Canal. Panama City is the oldest town on the mainland of America, being founded in 1519.



Photograph by H. C. Mann

THE CAPE HENRY LIGHT WAS SIGHTED BY THE "CARNEGIE" EARLY ONE MORNING IN NOVEMBER, AFTER AN ABSENCE OF 25 MONTHS

The lighthouse in the foreground has superseded the one in the background, which was the first light built by the United States and which served as a beacon to ships sailing into port between Cape Charles and Cape Henry for more than a hundred years.

walk along, poking into the holes in the reef. When they strike a soft object and the water turns a dark bluish black, they begin to jab and twist the stick until the long tentacles armed with suckers come stealing out of the hole and up the stick to fasten themselves on the arms of the native.

Finally the cuttle-fish comes out of his hole; the woman seizes it in both hands and, with one strong bite of her powerful teeth on the head of the fish, its tentacles relax and the catch is dumped into the basket carried over her shoulder.

Another native was fishing in the shallow water near the shore with a long three-pronged spear, wearing goggles to enable him to see under water and stooping below the surface to spear the fish which would gather for the bait scattered about. When he would succeed in spearing a fish, he would stand up and, with a quick twist, throw it off the point on to the beach, where his small son would pick it up, string it on a forked stick, and place it in the water to keep fresh.

Sometimes all the women of the village would journey to the shore, carrying a large net on their heads, and with much sociability and shouting wade out into the deep water, set the net, and drive the fish into it.

This reminded us of other methods we had seen the natives use to snare the harmless, unsuspecting, yet necessary, fish. In the earlier days we had seen the native sailing across Colon Bay in his small dugout canoe, reclining at ease in the stern, steering with one hand and managing the sail with the other, with his foot resting on the gunwale, while fastened to his great toe was a trolling line which he trailed astern. The wiggling of the toe served to give the hook the jump necessary to attract the fish.

At St. Helena the natives fish at night with a lantern at the stern of the boat. The idle hook, resting in the midst of the fish, which flock to see the light and stop to pick up the scattered bait, is suddenly jerked through the group, snaring the unlucky one which happens to be in the way.

Contrasted with the industry of the women, we saw a native man, clothed with a soiled piece of calico twisted about his waist, sitting alone on the warm sand of the beach in the shade of the palm trees, gazing out over the surf. Apparently unable to concentrate his thoughts, he decided to have a smoke. Glancing around, he selected a dry stick, split it, and, rubbing one part on the other leisurely until a groove had been formed and a small pile of powdered wood had been collected at one end, he suddenly began moving one stick rapidly back and forth in the groove of the other until the heat thus generated started the powdered wood to smoking and glowing.

Twisting a small bundle of dried banana and coconut-palm leaves, he set this on fire by dumping the glowing pile of wood powder upon it and holding it up to the breeze. When it was well ablaze he placed it on the ground and began piling twigs and branches over it until he had a fire going. Then, searching amid the débris at his side, he selected a long piece of dry banana leaf and split it to proper width; next he tore it off and laid it upon his knee. Reaching into the twisted piece of calico about his waist, he pulled out a roll of tobacco leaf, selected a small amount, replaced the balance, and leisurely rolled the tobacco in the piece of dried banana leaf, fashioning a cigarette some six inches in length.

Picking up one of the glowing twigs from the fire, he was soon enjoying his long smoke. All this was done without moving from his position, and apparently he was oblivious of the foreigner who was seated on the sand not far distant watching the whole performance. Thus does the native break the monotony of existence in the South Seas. When he tires of smoking, he will rest and philosophize again.

PHYSICIAN LEFT AT RAROTONGA

It was now time to sail for Panama, and then on home to Washington. On the way it was necessary to stop at Rarotonga for one day, to leave our doctor at the hospital to recover from a seriously infected arm. During the first five days after the doctor had been left ashore, six patients came to try out the medical ability of the captain, who had to be the temporary physician.

They seemed to be more than satisfied with the doses given; at least, they did not return for more.

On the voyage through the stormy southern latitudes the rudder stock was splintered and rendered useless during a heavy gale. In the one day's calm between storms we were able to send down the royal yard and rig it up across the quarter-deck as part of the temporary steering gear, or "jury-rudder."

HOMEWARD BOUND

Coming up through the southeast trades toward Panama, we saw numbers of the wandering albatross, Cape pigeons, bos'n birds, whales, porpoises, bonitos, and flying fish. Frequently in the morning Mike, the cat, would have that satisfied look which comes after a full meal, and the fins and tails of several flying fish found on deck told the story. Doubtless, attracted by the ship's lights, they had flown on board during the night.

Many specimens of marine life would come to the surface of the sea during calms. Hidden beneath the tiny Portuguese man-of-war, or physalia, we would find several tiny little fish, less than one inch in length, very highly colored, the brilliant blue stripes contrasting vividly with the rich silver sheen of their scales.

Sailing up through the Gulf of Panama, 12 snakes were seen during the day, some being three feet in length, with dark, yellow-spotted back, yellow belly, and flat spatulate tail. During heavy rains the rivers carry hundreds of these snakes down into the sea from the interior.

The Director, Dr. Bauer, joined us at Panama on one of his inspection trips and accompanied the party on the voyage to Washington.

After passing through the Panama Canal, dodging the hurricanes of the West Indies, and weathering the usual storms off Cape Hatteras, we at last sighted the light at Cape Henry early one morning in November and were soon at home again, after an absence of 25 months.

It is a wonderful experience to sight a light flashing regularly in the night whereas for several months there has been nothing to see except the vast expanse of

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It is a wonderful experience to sight a light flashing regularly in the night whereas for several months there has been nothing to see except the vast expanse of ocean by day and only the illimitable stars by night. The navigator passes the word that at a certain hour a light should be visible dead ahead, and all eyes are eagerly strained to see the light sooner. Then follows a thrill when the cry of "Light dead ahead, sir," comes ringing down from aloft. How much greater the thrill when the light points the way to our own home port, after an absence of over two years!

The purposes of these expeditions could not have been accomplished without the splendid perseverance in the face of difficulties and hardships and the hearty spirit of loyalty and coöperation shown by every member of the various parties.

We had seen many interesting places and had met many strange people, yet the sight of our own home land and of the loved ones who were awaiting our return was a very welcome end to our travels, and we decided that no other country could ever take the place of our own.

A large amount of magnetic, atmospheric-electric, meteorological, and geographical data was obtained. Observations were made daily, no matter what the conditions—fair weather or stormy, whether the vessel was hove to in a gale, running before the storm like a frightened bird, or drifting aimlessly in a calm. Everyone was busy each day from morning until nightfall.

Within a week after arriving at any port the completed results were on their way to Washington, where they were forwarded, free of charge, to the different hydrographic bureaus of the world for use in the preparation of their nautical charts and publications.

THE SOCIETY'S NEW MAP OF THE WORLD

WITH this issue of its Magazine, the National Geographic Society presents to its members a New Map of the World—the third of a series of handsome wall maps in colors issued as supplements with THE GEOGRAPHIC during 1922 and the seventh since February, 1921, representing an expenditure of more than $200,000.

The World Map is the product of several years of research and labor. It is drawn on a specially devised projection, which materially reduces distortions of size and shape, the most serious defects in the familiar Mercator projection. An additional advantage of the present product over most wall maps of the world is the presentation of the Pacific Ocean in its entirety, thus enabling the user to obtain a clear idea of the extent of the mandates and island possessions in the South Pacific.

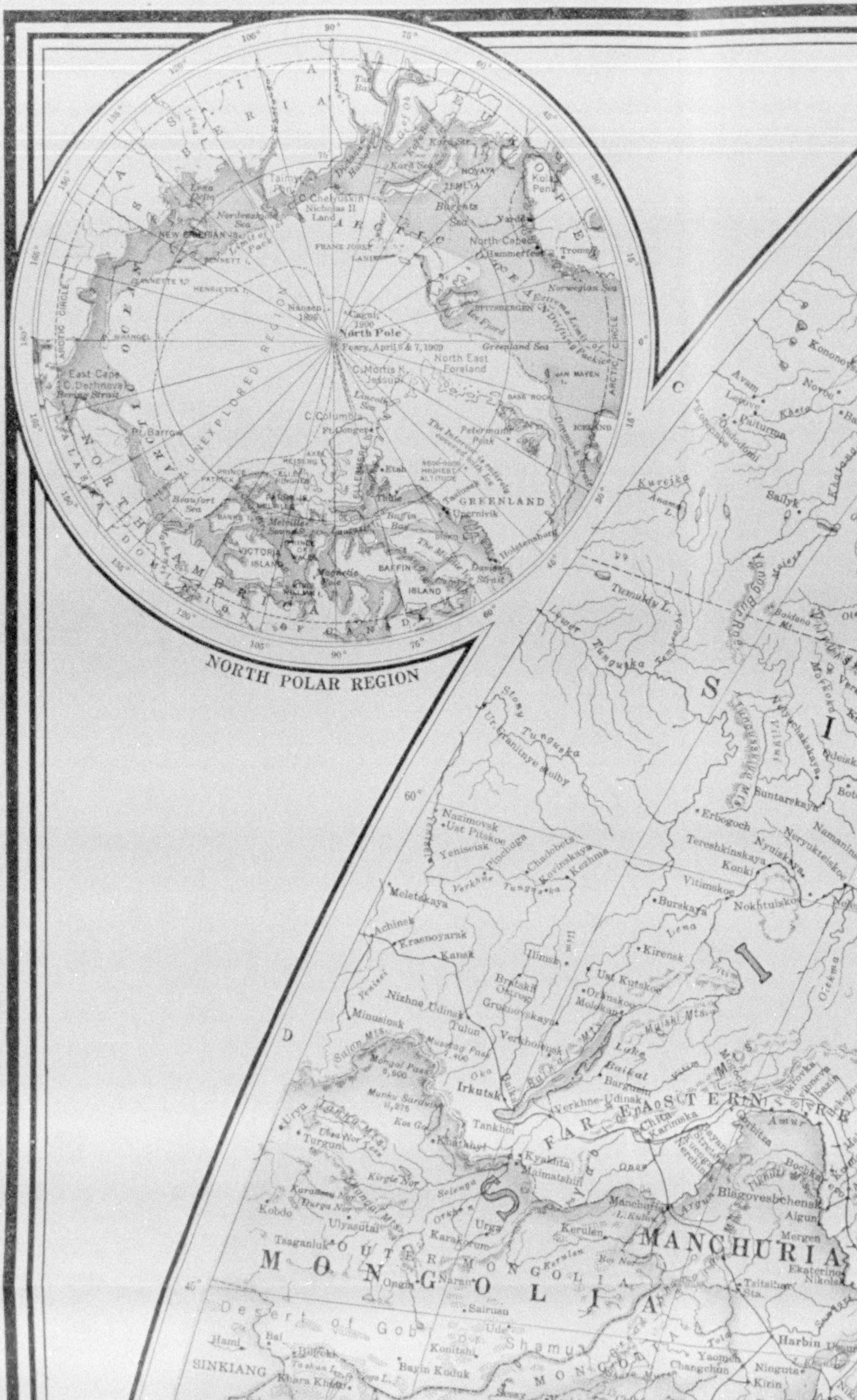
The several mandates are clearly distinguished from colonial possessions by the use of striped lines, which do not indicate the exact water boundaries of the mandates, but merely include the islands affected by each. Mandated areas in Africa are similarly indicated by diagonal stripes in the color of the country exercising the mandate (see also The Society's large Map of Africa issued in October, 1922).

In South America areas in dispute between Peru and Ecuador, Peru and Colombia, and Colombia and Venezuela are indicated by alternate colors of the countries affected.

The inset maps of the Polar Regions, in the upper corners of the map, will prove of special value to readers interested in Arctic and Antarctic explorations, while the charts showing density of population and prevailing winds, ocean currents, and vegetation will prove useful for ready reference.

The Society's next supplement will be a splendid wall map of the United States, of convenient size, to be issued with an early number of THE GEOGRAPHIC.

Additional copies of the Map of the World may be obtained from the headquarters of The Society in Washington—paper, $1.00; on map linen, $1.50.



NORTH POLAR REGION

North Pole
Peary, April 6 & 7, 1909
Nansen 1895
Cagni 1900
FRANZ JOSEF LAND
NOVAYA ZEMLYA
Kara Sea
Barents Sea
Norwegian Sea
Greenland Sea
SPITZBERGEN
North Cape
Hammerfest
Tromsö
Vardö
Kola Pen.
C. Chelyuskin
Nicholas II Land
Taimyr Pen.
Lena Delta
Nordenskiöld Sea
NEW SIBERIAN IS.
BENNETT I.
JEANNETTE I.
HENRIETTA I.
WRANGEL I.
East Cape
C. Dezhnev
Bering Strait
Pt. Barrow
Beaufort Sea
UNEXPLORED REGION
ARCTIC OCEAN
NORTH AMERICA
ALASKA
DOMINION OF CANADA
C. Morris K. Jessup
North East Foreland
JAN MAYEN
ICELAND
C. Columbia
Ft. Conger
Etah
Thule
Upernivik
Holstensborg
GREENLAND
Petermann Peak
Baffin Bay
BAFFIN ISLAND
Davis Strait
VICTORIA ISLAND
Magnetic Pole
ELLESMERE L.
Melville Sound
ARCTIC CIRCLE
SIBERIA
EUROPE
C
D
60°
45°
Kononov
Novoe
Avam
Letove
Paiturma
Khatanga
Sailyk
Kureika
Anama L.
Tunuskiy L.
Lower Tunguska
Stony Tunguska
Verkhoyansk Mts.
S
I
B
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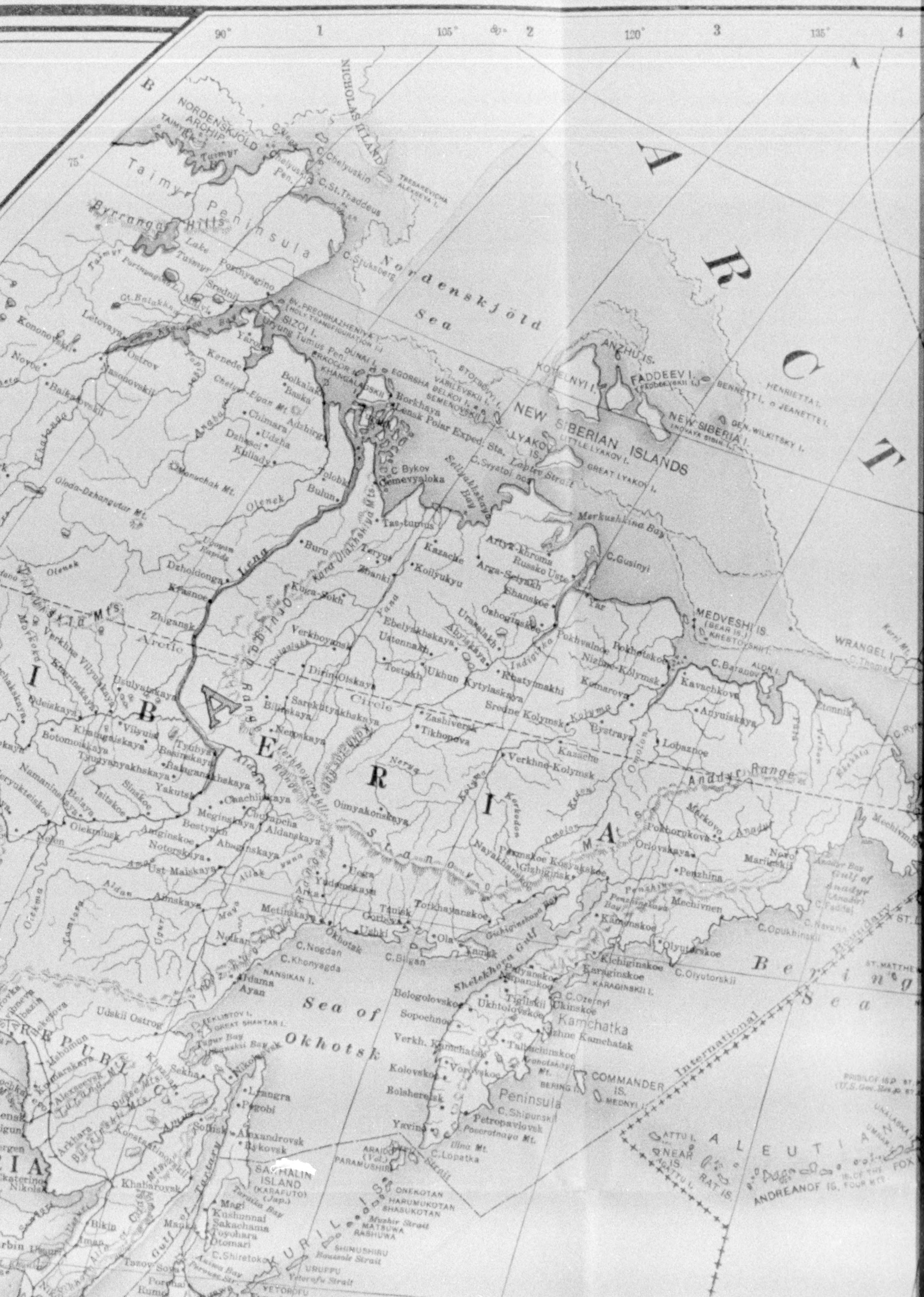
Suntarskaya
Erbogoch
Tereshkinskaya
Konki
Nyuiskaya
Vitimskoe
Nokhtuiskoe
Nazimovsk
Ust Pitskoe
Yeniseisk
Pinchuga
Chadobets
Kovinskaya
Kezhma
Meletskaya
Achinsk
Krasnoyarsk
Kansk
Ilimsk
Burskaya
Kirensk
Lena
Vitim
Olekma
Bratskii Ostrog
Ust Kutskoe
Orlinskoe
Molokanskoe
Nizhne Udinsk
Tulun
Minusinsk
Grusnovskaya
Verkholensk
Lake Baikal
Irkutsk
Barguzin
Verkhne-Udinsk
Chita
Karimska
Tankhoi
Kosogol
Khathkhyl
Kyakhta
Maimatshin
FAR EASTERN REPUBLIC
Urga
Kerulen
Manchuria
Argun
Blagoveshchensk
Aigun
Amur
Mergen
MANCHURIA
Tsitsihar
Harbin
Changchun
Ninguta
Kirin
Yaomen
Kirgis Nor
Kobdo
Ulyasutai
Tsaganluk
Karakorum
Naran
Ongin
OUTER MONGOLIA
MONGOLIA
Desert of Gobi
Shamo
Sairusu
Ude
Konitshi
Bayin Kuduk
Hami
Bal
SINKIANG
Khara Khoto
Tannu Mts.
Sayan Mts.
Urga
Turgun
Ubsa Nor
Selenga
Orkhon
Munku Sardyk 11,275
Mongol Pass 6,900
Mustag Pass 7,400
Yablonoi Mts.


90°
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105°
2
120°
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4
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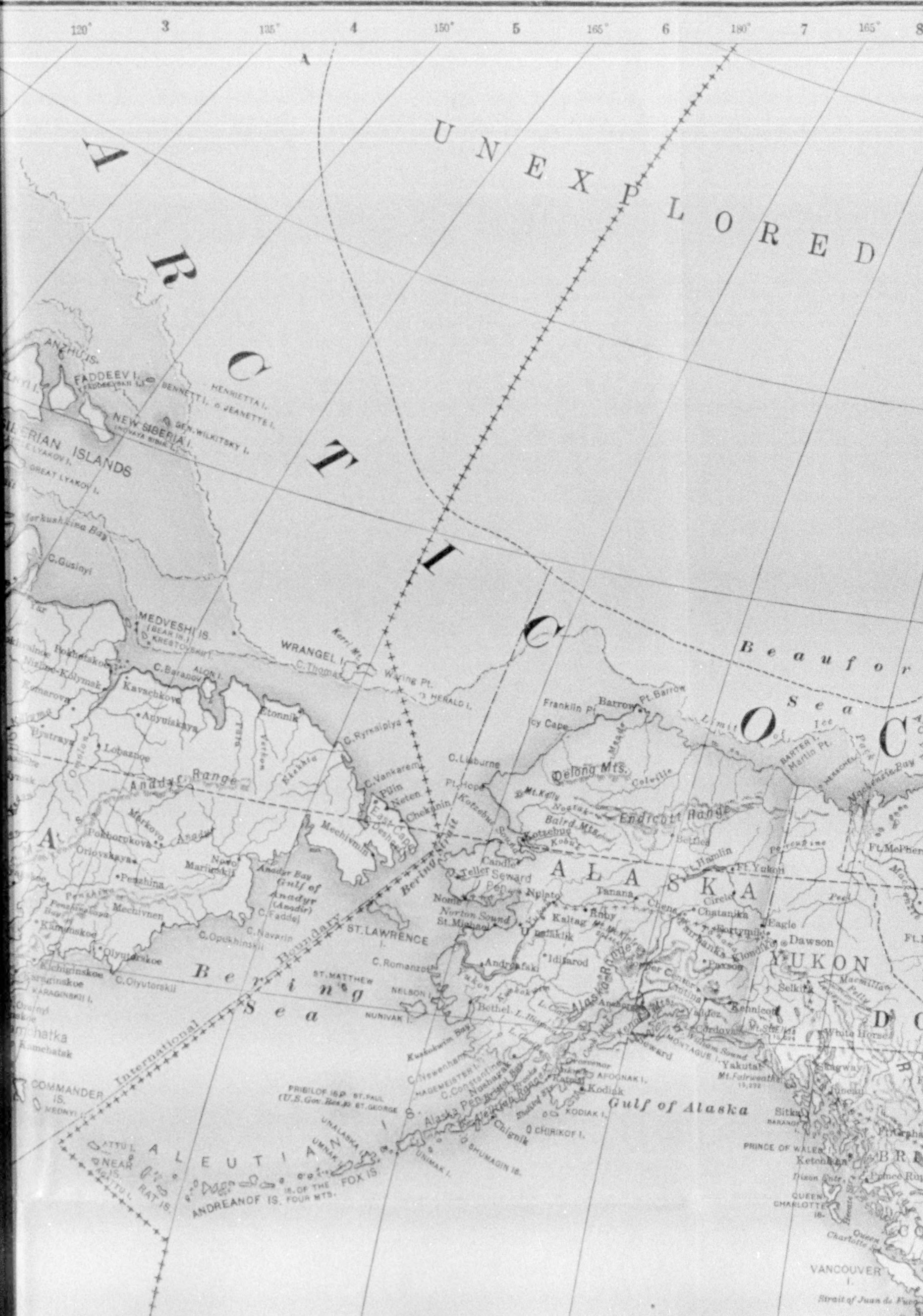
A R C T
NORDENSKJOLD ARCHIP.
NICHOLAS II LAND
C. Chelyuskin
Chelyuskin Pen.
C. St. Thaddeus
TSESAREVICHA ALEXSEYA I.
Taimyr Peninsula
Byrranga Hills
Lake Taimyr
Porchyagino
Nordenskjöld Sea
C. Stuksberg
SV. PREOBRAZHENIYA I. (HOLY TRANSFIGURATION I.)
SIZCI I.
Urung Tumus Pen.
DUNAI I.
EGORSHA DELKOI I.
VASILEVSKII I.
SEMENOVSKII I.
ANZHU IS.
KOTELNYI I.
FADDEEV I.
BENNETT I.
HENRIETTA I.
JEANETTE I.
GEN. WILKITSKY I.
NEW SIBERIA I.
NEW SIBERIAN ISLANDS
LYAKOV IS.
LITTLE LYAKOV I.
GREAT LYAKOV I.
Borkhaya
Lensk Polar Exped. Sta.
Laptev Strait
C. Bykov
Semevyaloka
C. Svyatoi nos
Merkushkina Bay
C. Gusinyi
MEDVESHI IS. (BEAR IS.)
KRESTOVSKII I.
WRANGEL I.
C. Baranov
ALON I.
Kolyma
Nizhne-Kolymsk
Sredne Kolymsk
Verkhne-Kolymsk
Anadyr Range
Anadyr
Gulf of Anadyr
C. Navarin
C. Olyutorskii
Bering Sea
COMMANDER IS.
BERING I.
MEDNYI I.
ALEUTIAN
ATTU I.
NEAR IS.
RAT IS.
ANDREANOF IS.
FOUR MTS.
FOX
UNALASKA I.
International Boundary
Kamchatka Peninsula
Petropavlovsk
C. Lopatka
Shelekhova Gulf
Gizhiginskaya Bay
Sea of Okhotsk
Okhotsk
Ayan
Nikolaevsk
SAKHALIN ISLAND (KARAFUTO) (Jap.)
KURIL IS.
PARAMUSHIR
ONEKOTAN
HARUMUKOTAN
SHASUKOTAN
MATSUWA
RASHUWA
SHIMUSHIRU
URUPPU
YETOROFU
Bussole Strait
Yetorofu Strait
Gulf of Tartary
Khabarovsk
Amur
Lena
Olenek
Yana
Indigirka
Aldan
Yakutsk
Verkhoyansk
Verkhoyansk Range
Arctic Circle
SIBERIA
REPUBLIC
Dzholdonga
Zhigansk
Vilyuisk
Olekminsk
Oimyakonskaya
Stanovoi Mts.
Bulun
Kazache
Udskii Ostrog
Aleksandrovsk
C. Shiretoko
Toyohara


120°
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135°
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A R C T I C
O C
U N E X P L O R E D
Beaufor
Sea
Limit of Ice Pack
ANZHU IS.
FADDEEV I.
BENNETT I.
HENRIETTA I.
JEANETTE I.
NEW SIBERIA I.
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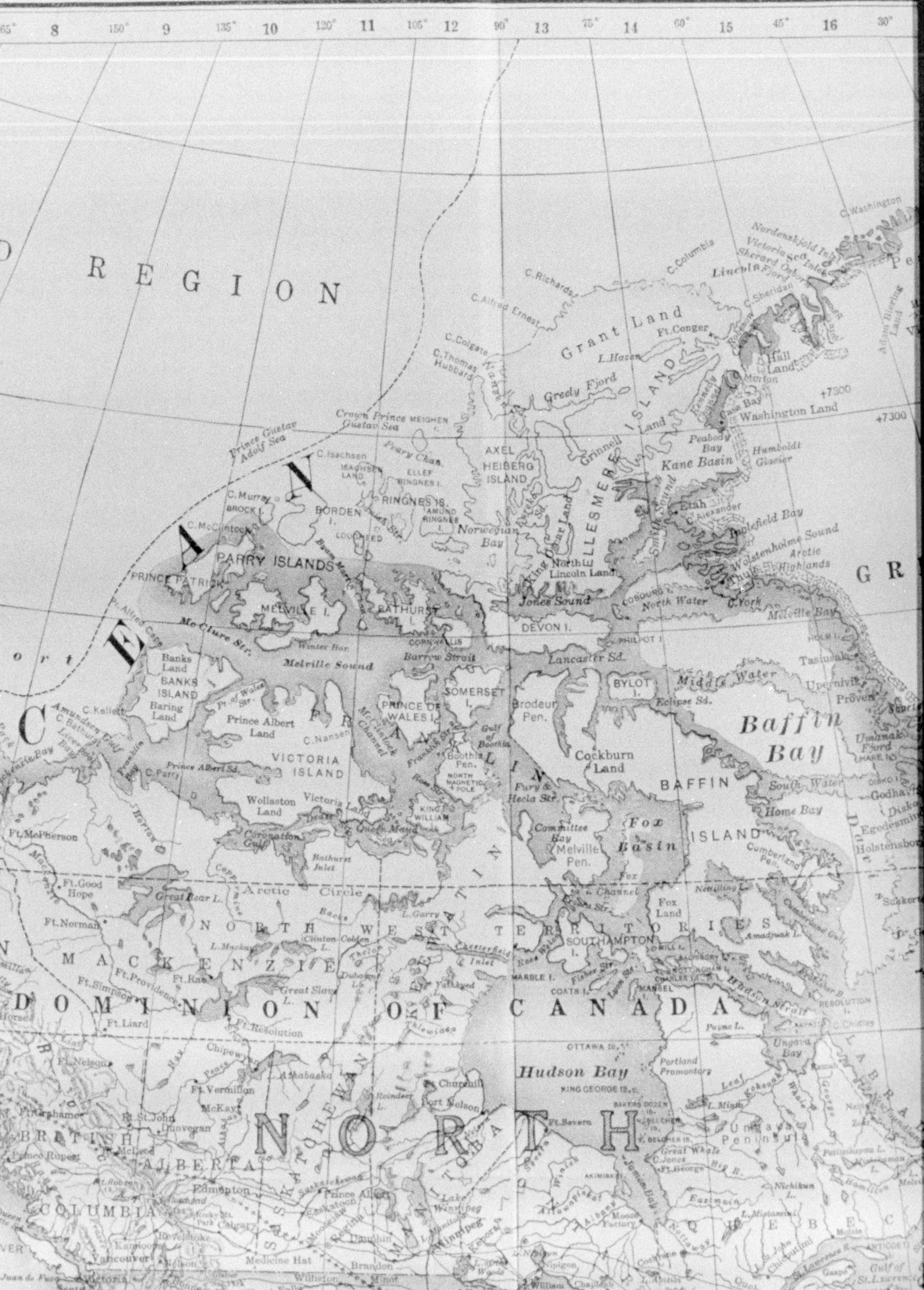
SIBERIAN ISLANDS
LYAKOV I.
GREAT LYAKOV I.
Markushkina Bay
C.Gusinyi
MEDVESHI IS.
(BEAR IS.)
KRESTOVSKI I.
Nizhne-Kolymsk
Komarova
C.Baranov
AION I.
Kavachkova
Anyuiskaya
Etonnik
WRANGEL I.
C.Thomas
Waring Pt.
HERALD I.
Kerri Mt.
C.Ryrkaipiya
C.Vankarem
Pilin
Neten
Chekhnin
East Cape
Dezhnev
Mechivmin
Lobaznoe
Anadyr Range
Markovo
Anadyr
Pokhorukova
Orlovskaya
Novo Mariinskii
Penzhina
Anadyr Bay
Gulf of Anadyr
(Anadyr)
C.Faddei
C.Navarin
C.Opukhinskii
Mechivnen
Kamenskoe
Olyutorskoe
Kichiginskoe
C.Olyutorskii
KARAGINSKII I.
Kamchatka
Kamchatsk
COMMANDER IS.
MEDNYI I.
International Boundary
Bering Strait
ST.LAWRENCE I.
ST.MATTHEW I.
C.Romanzof
NELSON I.
NUNIVAK I.
Bering Sea
PRIBILOF IS. ST.PAUL
(U.S.Gov. Res.) ST.GEORGE
ALEUTIAN IS.
ATTU I.
NEAR IS.
RAT IS.
ANDREANOF IS.
IS. OF THE FOUR MTS.
FOX IS.
UNALASKA I.
UMNAK I.
UNIMAK I.
SHUMAGIN IS.
Alaska Peninsula
Aleutian Range
Chignik
CHIRIKOF I.
KODIAK I.
Kodiak
AFOGNAK I.
Shelikof Str.
Katmai
Naknek
Nushagak
C.Constantine
C.Newenham
HAGEMEISTER I.
Kuskokwim Bay
Bethel
Kuskokwim
Yukon
Andreafski
Iditarod
Nome
Teller
Candle
Seward Pen.
Norton Sound
St.Michael
Unalakleet
Nulato
Kaltag
Ruby
Tanana
Kotzebue Sound
Kotzebue
Kobuk
C.Lisburne
Pt.Hope
Icy Cape
Franklin Pt.
Barrow
Pt.Barrow
DeLong Mts.
Mt.Kelly
Noatak
Baird Mts.
Endicott Range
Colville
Bettles
Ft.Hamlin
Ft.Yukon
Porcupine
Circle
Chatanika
Chena
Fortymile
Eagle
Dawson
Klondike
Fairbanks
Alaska Range
Mt.McKinley
Anchorage
Kenai Mts.
Cook Inlet
Seward
Copper Center
Chitina
Valdez
Kennicott
Cordova
MONTAGUE I.
Yakutat
Mt.Fairweather
Gulf of Alaska
BARTER I.
Martin Pt.
HERSCHEL I.
Mackenzie Bay
Ft.McPherson
Peel
YUKON
Selkirk
Pelly
Macmillan
White Horse
Skagway
Juneau
Sitka
BARANOF I.
PRINCE OF WALES I.
Ketchikan
Dixon Entr.
Prince Rupert
QUEEN CHARLOTTE IS.
Queen Charlotte Sd.
VANCOUVER I.
Strait of Juan de Fuca
ALASKA
D
BR

8
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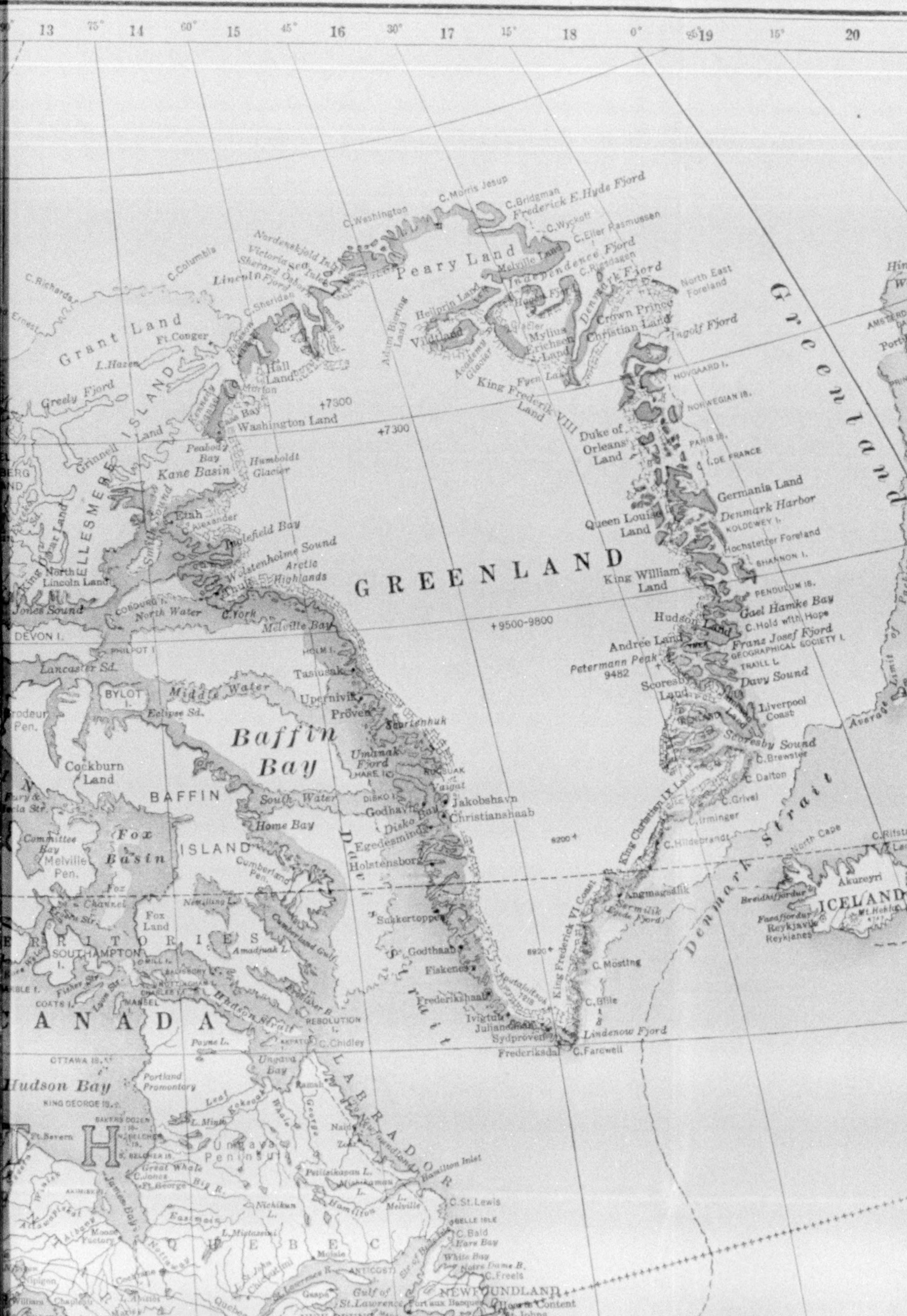
REGION
O C E A N
Prince Gustav Adolf Sea
Crown Prince Gustav Sea
C.Columbia
C.Washington
Grant Land
Lincoln Fjord
Sherard Osborn Fjord
Victoria Fjord
Nordenskjold Inlet
Hall Land
Washington Land
Humboldt Glacier
Kane Basin
Ft.Conger
L.Hazen
Greely Fjord
GRINNELL LAND
ELLESMERE ISLAND
AXEL HEIBERG ISLAND
C.Richards
C.Alfred Ernest
C.Colgate
C.Thomas Hubbard
MEIGHEN
Peary Chan.
C.Isachsen
ISACHSEN LAND
ELLEF RINGNES I.
AMUND RINGNES I.
RINGNES IS.
BORDEN I.
LOUGHEED
C.Murray
BROCK I.
C.McClintock
Norwegian Bay
King Oscar Land
North Lincoln Land
Smith Sound
Etah
C.Alexander
Inglefield Bay
Wolstenholme Sound
Arctic Highlands
C.York
Melville Bay
North Water
COBOURG I.
Jones Sound
DEVON I.
PHILPOT I.
Lancaster Sd.
BYLOT I.
Eclipse Sd.
Middle Water
PARRY ISLANDS
PRINCE PATRICK
MELVILLE I.
BATHURST I.
CORNWALLIS
Barrow Strait
Winter Har.
Melville Sound
Mc Clure Str.
Banks Land
BANKS ISLAND
Baring Land
C.Kellett
Amundsen Gulf
Pt. of Wales Str.
Prince Albert Land
C.Nansen
VICTORIA ISLAND
Prince Albert Sd.
Wollaston Land
Victoria Land
Coronation Gulf
Bathurst Inlet
Queen Maud
PRINCE OF WALES I.
M'Clintock Channel
Franklin Str.
SOMERSET I.
Brodeur Pen.
Gulf of Boothia
Boothia Pen.
NORTH MAGNETIC POLE
KING WILLIAM
Fury & Hecla Str.
Committee Bay
Melville Pen.
Cockburn Land
BAFFIN ISLAND
Fox Basin
Fox Channel
Fox Land
Baffin Bay
Home Bay
South Water
Cumberland Pen.
Cumberland Gulf
Frobisher B.
Amadjuak L.
Nettilling L.
Hudson Strait
RESOLUTION I.
C.Chidley
Ungava Bay
Ungava Peninsula
Upernivik
Proven
Tasiusak
Umanak Fjord
HARE I.
DISKO I.
Godhavn
Egedesminde
Holstensborg
Sukkertoppen
HOLM I.
GR
Adam Bierling Land
F R A N K L I N
K E E W A T I N
Arctic Circle
Ft.McPherson
Ft.Good Hope
Ft.Norman
Great Bear L.
L.Mackay
Clinton-Colden L.
L.Garry
Backs
Thelon
Dubawnt L.
Yathkyed
Chesterfield Inlet
Roes Welcome
SOUTHAMPTON I.
MILL I.
SALISBURY
NOTTINGHAM I.
CHARLES I.
MANSEL
COATS I.
MARBLE I.
Fisher Str.
N O R T H   W E S T   T E R R I T O R I E S
M A C K E N Z I E
D O M I N I O N   O F   C A N A D A
Ft.Rae
Great Slave L.
Ft.Providence
Ft.Simpson
Ft.Liard
Ft.Resolution
Chipewyan
L.Athabaska
Peace
Ft.Vermilion
McKay
Ft.Nelson
Ft.St.John
Dunvegan
Mc Leod
Prince Rupert
BRITISH COLUMBIA
ALBERTA
Edmonton
Calgary
Rocky Mt. Park
Revelstoke
Kamloops
Vancouver
Victoria
Juan de Fuca
Nelson
Medicine Hat
SASKATCHEWAN
Saskatoon
Prince Albert
Regina
Brandon
MANITOBA
Winnipeg
L.Winnipeg
Dauphin
Minot
Williston
Reindeer L.
Churchill
Port Nelson
Ft.Severn
Hudson Bay
OTTAWA IS.
KING GEORGE IS.
BAKERS DOZEN IS.
BELCHER IS.
Great Whale
C.Jones
Ft.George
James Bay
AKIMISKI
Attawapiskat
Albany
Moose Factory
Nottaway
Eastmain
L.Mistassini
Nichikun L.
Portland Promontory
Payne L.
Leaf
Koksoak
L.Minto
Q U E B E C
Hamilton
Petitsikapau L.
L A B R A D O R
ANTICOSTI
Gulf of St. Lawrence
St. Lawrence R.
Gaspe
Chicoutimi
Lake of the Woods
Nipigon
Ft.William
N O R T H
+7300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75°
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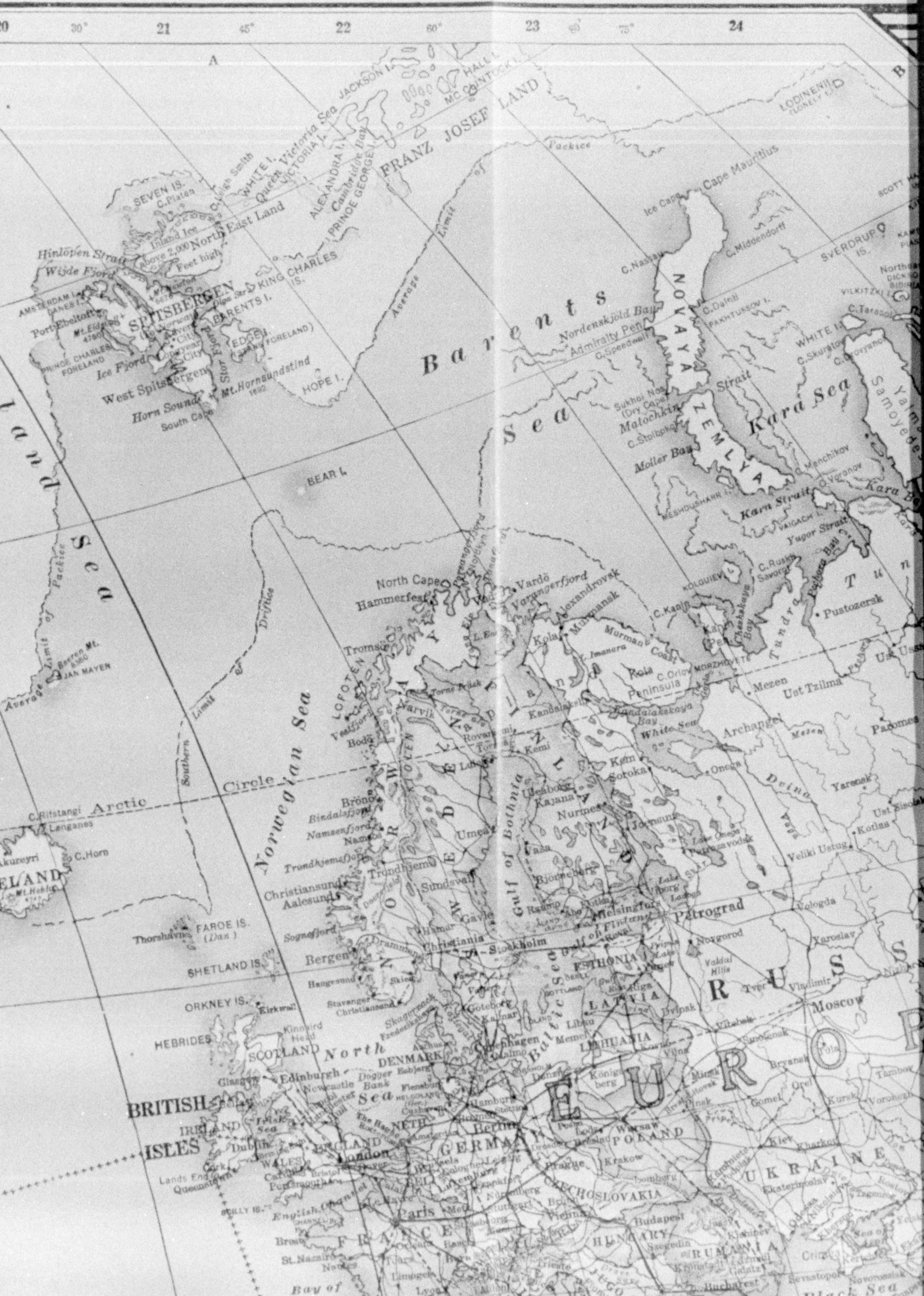
C.Morris Jesup
C.Bridgman
Frederick E. Hyde Fjord
C.Washington
C.Wyckoff
C.Eller Rasmussen
Nordenskjold Inlet
Victoria Sea
Sherard Osborn
Lincoln Fjord
C.Columbia
Peary Land
Melville Land
Independence Fjord
Denmark Fjord
North East Foreland
C.Richards
Ernest
C.Sheridan
Heilprin Land
Adam Biering Land
Vildtland
Hagen Fjord
Academy Glacier
Mylius Erichsen Land
Crown Prince Christian Land
Ingolf Fjord
Greenland
Grant Land
Ft.Conger
L.Hazen
Hall Land
C.Morton
Fyen Lake
King Frederik VIII Land
HOVGAARD I.
NORWEGIAN IS.
Greely Fjord
ELLESMERE ISLAND
Grinnell Land
Kennedy Channel
Cass Bay
Washington Land
+7300
+7300
Peabody Bay
Kane Basin
Humboldt Glacier
Duke of Orleans Land
PARIS IS.
I. DE FRANCE
Germania Land
Denmark Harbor
KOLDEWEY I.
Hochstetter Foreland
SHANNON I.
Smith Sound
Etah
C.Alexander
Inglefield Bay
Wolstenholme Sound
Arctic Highlands
Thule
King Oscar Land
North Lincoln Land
Queen Louise Land
GREENLAND
King William Land
Jones Sound
COBOURG I.
North Water
C.York
Melville Bay
+9500-9800
PENDULUM IS.
Gael Hamke Bay
C.Hold with Hope
Hudson Land
Andrée Land
Franz Josef Fjord
GEOGRAPHICAL SOCIETY I.
TRAILL I.
DEVON I.
PHILPOT I.
HOLM I.
Lancaster Sd.
Tasiusak
Petermann Peak 9482
Scoresby Land
Davy Sound
Liverpool Coast
BYLOT I.
Middle Water
Upernivik
Prøven
Svartenhuk
Eclipse Sd.
Brodeur Pen.
Baffin Bay
Renland
Scoresby Sound
C.Brewster
Umanak Fjord
HARE I.
RUBSUAK
Vaigat
Cockburn Land
C.Dalton
BAFFIN
South Water
DISKO I.
Godhavn
Jakobshavn
Christianshaab
Disko Bay
King Christian IX Land
C.Grivel
C.Irminger
Fury & Hecla Str.
Home Bay
Egedesminde
Davis Strait
Denmark Strait
Committee Bay
Melville Pen.
Fox Basin
ISLAND
Cumberland Pen.
Holstensborg
8200+
C.Hildebrandt
North Cape
C.Rifstangi
Akureyri
Fox Channel
Nettilling L.
Angmagssalik
Sermilik
Egede Fjord
Breidhifjordur
Faxafjordur
ICELAND
Mt.Hekla
Reykjavik
Reykjanes
Fox Land
Cumberland Gulf
Sukkertoppen
TERRITORIES
Amadjuak L.
SOUTHAMPTON I.
Frozen Str.
Godthaab
8920+
King Frederick VI Coast
C.Mosting
Fiskenaes
MILL I.
SALISBURY I.
Fisher Str.
Lyon Str.
CHARLES I.
Frobisher B.
Frederikshaab
COATS I.
MARBLE I.
MANSEL
Hudson Strait
RESOLUTION I.
Ivigtut
Julianehaab
C.Bille
CANADA
Sydprøven
Lindenow Fjord
Frederiksdal
C.Farewell
Payne L.
C.Chidley
OTTAWA IS.
Ungava Bay
Hudson Bay
Portland Promontory
KING GEORGE IS.
Ramah
LABRADOR
BAKERS DOZEN IS.
Leaf
Koksoak
Whale
George
BELCHER IS.
Ft.Severn
L.Minto
Ungava Peninsula
Nain
Zoar
Newfoundland
Hamilton Inlet
Great Whale
C.Jones
Ft.George
Big R.
Petitsikapau L.
Michikamau L.
Hamilton
L.Melville
C.St.Lewis
Nichikun L.
BELLE ISLE
C.Bald
Hare Bay
Eastmain
Attawapiskat
Albany
Moose Factory
L.Mistassini
QUEBEC
James Bay
Nottaway
White Bay
Notre Dame B.
Moisie
ANTICOSTI
C.Freels
Chibougamau
Nipigon
Cochrane
St.Lawrence R.
Gaspé
Gulf of St.Lawrence
Port aux Basques
NEWFOUNDLAND
Heart's Content
St.Johns
Williams
Chapleau
L.Abitibi
Quebec
Average Limit of Drift Ice


20
30°
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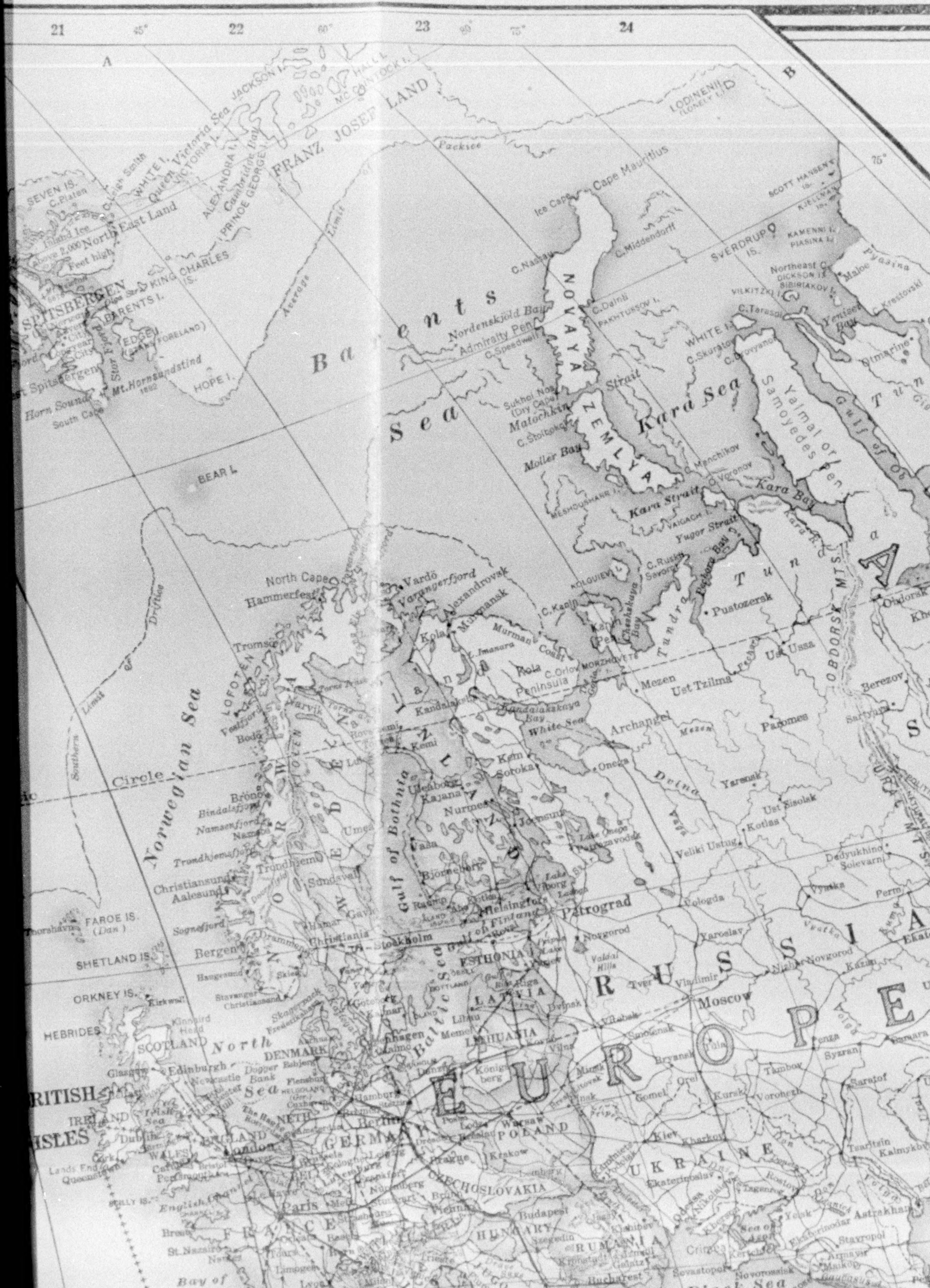
A
B
JACKSON I.
HALL I.
MC CLINTOCK I.
FRANZ JOSEF LAND
Packice
LODINENII (LONELY I.)
SEVEN IS.
C.Platen
WHITE I.
Queen Victoria Sea
VICTORIA I.
ALEXANDRA I.
Cambridge Bay
PRINCE GEORGE I.
North East Land
Inland Ice above 2,000 Feet high
Hinlopen Strait
Wijde Fjord
KING CHARLES IS.
SPITSBERGEN
BARENTS I.
AMSTERDAM I.
DANES I.
Port Ebeltoft
Mt. Eldeck
PRINCE CHARLES FORELAND
Ice Fjord
EDGE I.
West Spitsbergen
Stor Fjord
Mt. Hornsundstind
HOPE I.
Horn Sound
South Cape
Average Limit
Ice Cape
Cape Mauritius
C.Middendorff
C.Nassau
NOVAYA
ZEMLYA
Nordenskjöld Bay
Admiralty Pen.
C.Speedwell
C.Dalnii
PAKHTUSSOV I.
SVERDRUP IS.
SCOTT HANSEN I.
VILKITZKI I.
C.Tarasov
WHITE I.
C.Skuratov
Barents
Sea
Sukhoi Nos (Dry Cape)
Matochkin Strait
C.Stolbovoi
Moller Bay
Kara Sea
Yalmal
Samoyede
C.Menchikov
C.Voronov
MESHDUSHARK I.
Kara Strait
VAIGACH I.
Yugor Strait
Kara Bay
BEAR I.
Sea
Packice
Limit of Packice
Beeren Mt.
JAN MAYEN
Average Limit of Drift Ice
Southern Limit of Drift Ice
Norwegian Sea
North Cape
Hammerfest
Varangerfjord
Vardö
Alexandrovsk
Murmansk
Kola
Murman Coast
KOLGUIEV I.
C.Kanin
Kanin Pen.
Cheshskaya Bay
C.Ruskii Savorot
Pechora Bay
Tundra
Pustozersk
MORZHOVETS I.
C.Orlov
Kola Peninsula
Mezen
Ust Tzilma
Ust Ussa
Tromsö
LOFOTEN IS.
Vestfjord
Bodö
Narvik
Lapland
Kandalaksha
Kandalakshaya Bay
White Sea
Archangel
Pechora
Rovaniemi
Tornea
Kemi
Lulea
Kem
Soroka
Onega
Dvina
Pakomes
Yarensk
Ust Sisolsk
Kotlas
Brönö
Bindalsfjord
Namsenfjord
Namsos
Trondhjemsfjord
Trondhjem
Christiansund
Aalesund
NORWAY
SWEDEN
FINLAND
Umea
Gulf of Bothnia
Uleaborg
Kajana
Nurmes
Joensuu
Vasa
Björneborg
Lake Onega
Petrozavodsk
Veliki Ustug
Sundsvall
Gavle
Lake Ladoga
Vologda
Helsingfors
Gulf of Finland
Reval
Petrograd
Novgorod
Yaroslav
Valdai Hills
ESTHONIA
Christiania
Stockholm
Bergen
Sognefjord
Haugesund
Stavanger
Christianssand
Skagerrack
Kattegat
Göteborg
Kalmar
GOTLAND
ÖLAND
Baltic Sea
LATVIA
Riga
Libau
Memel
LITHUANIA
Kovno
Vilna
Dvinsk
Tver
Vladimir
Moscow
RUSSIA
EUROPE
Arctic Circle
C.Ritstangi
Langanes
Akureyri
C.Horn
ICELAND
Mt.Hekla
FAROE IS. (Dan.)
Thorshavn
SHETLAND IS.
ORKNEY IS.
Kirkwall
HEBRIDES
Kinnaird Head
SCOTLAND
North Sea
DENMARK
Esbjerg
Copenhagen
Malmö
Dogger Bank
Flensburg
HELGOLAND (Ger.)
Cuxhaven
Hamburg
Edinburgh
Glasgow
Newcastle
BRITISH ISLES
IRELAND
Irish Sea
Dublin
Cork
Queenstown
WALES
ENGLAND
London
Bristol
Lands End
Plymouth
SCILLY IS.
English Channel
NETH.
Amsterdam
Rotterdam
BEL.
Brussels
Cologne
Berlin
GERMANY
Leipzig
Dresden
Königsberg
Danzig
Warsaw
POLAND
Lodz
Krakow
Prague
Breslau
CZECHOSLOVAKIA
Lemberg
Kiev
Kharkov
UKRAINE
Ekaterinoslav
Odessa
Nikolaiev
Sevastopol
Black Sea
Sea of Azov
Crimea
Vitebsk
Smolensk
Minsk
Mogilev
Pinsk
Gomel
Bryansk
Orel
Kursk
Tula
Tambov
Voronezh
Budapest
HUNGARY
Vienna
Szegedin
RUMANIA
Kronstadt
Galatz
Bucharest
Jassy
JUGOSLAVIA
Trieste
Paris
Havre
Metz
Nürnberg
FRANCE
Brest
St. Nazaire
Nantes
Tours
Limoges
Lyon
Bay of Biscay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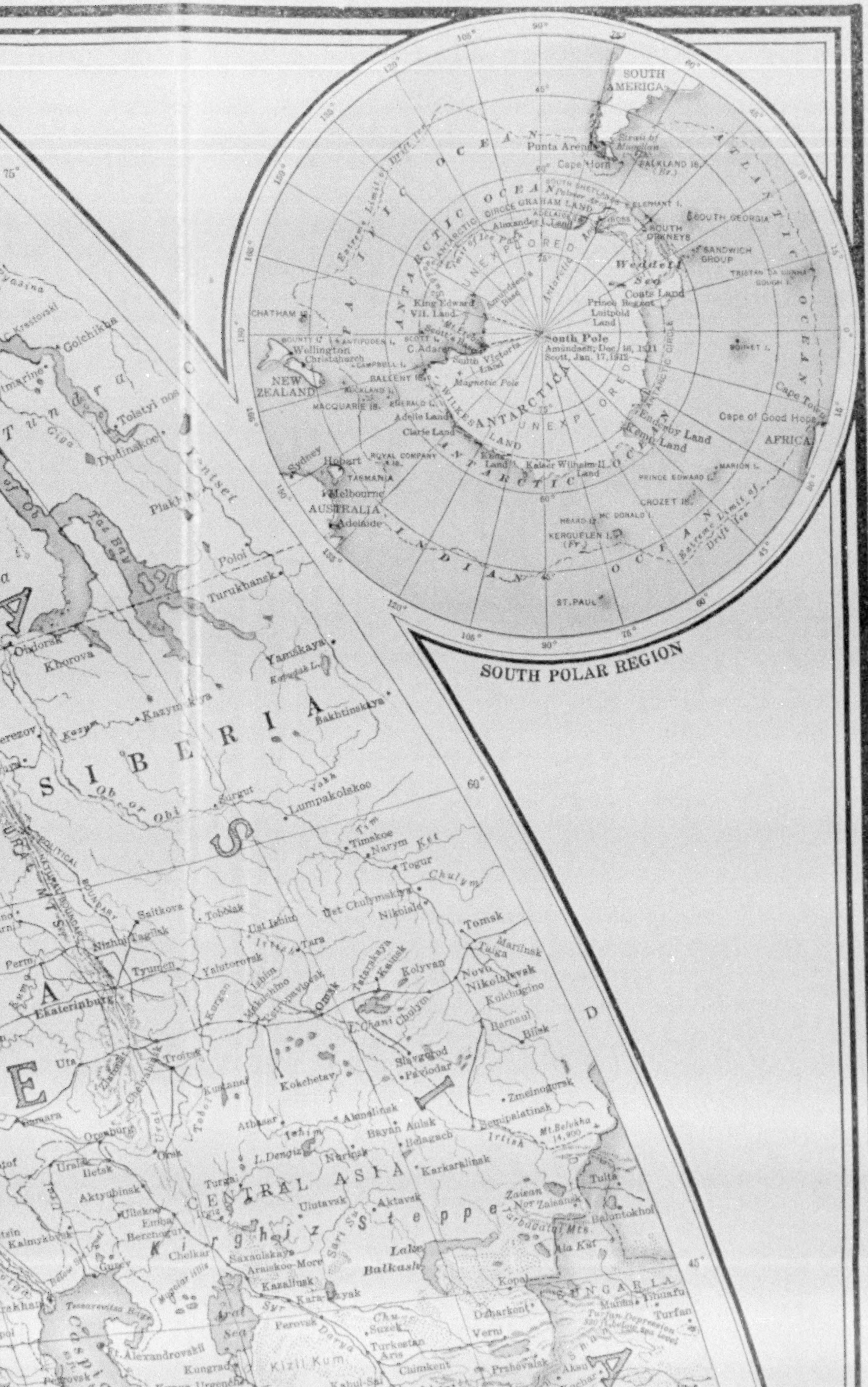
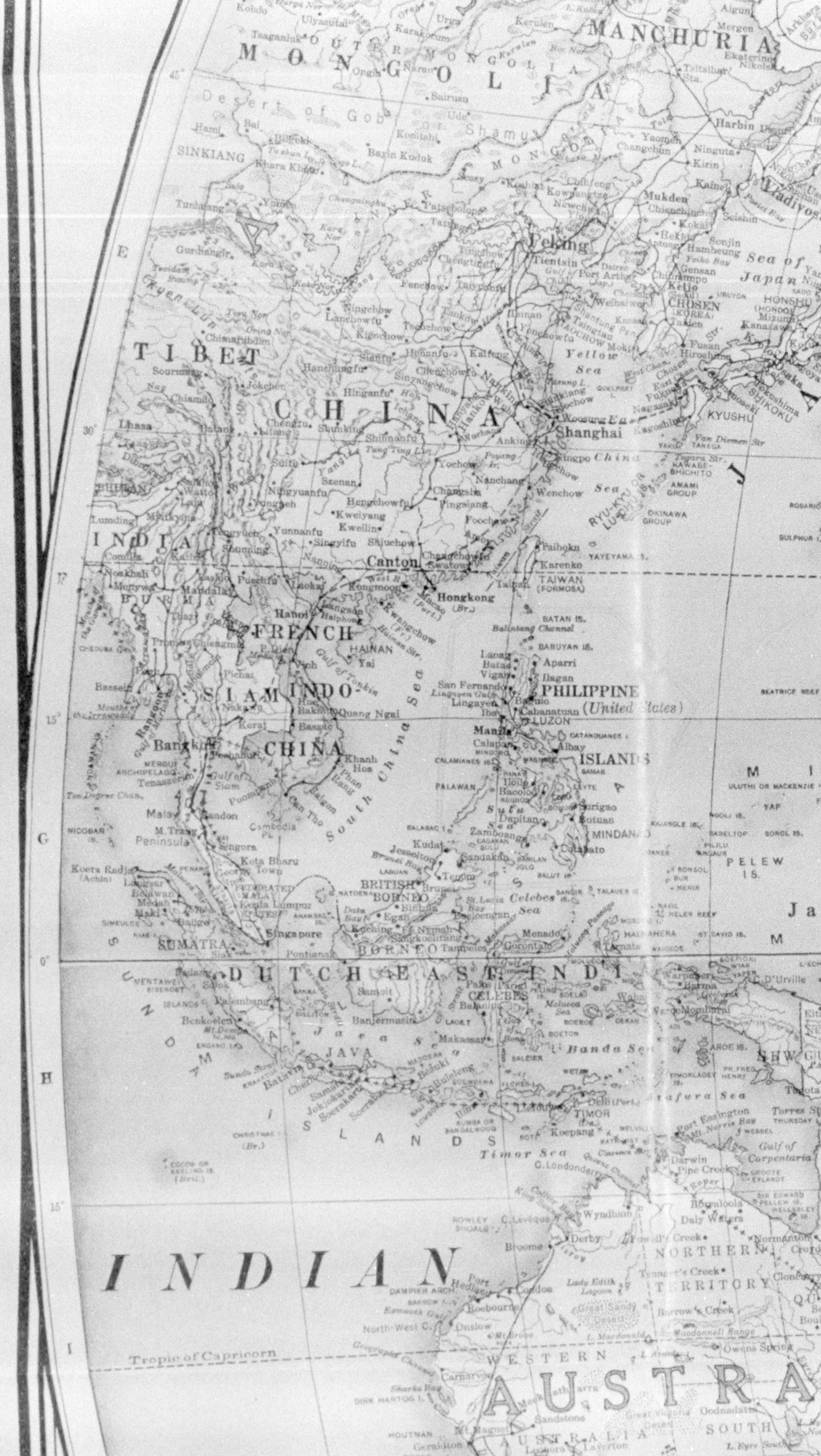
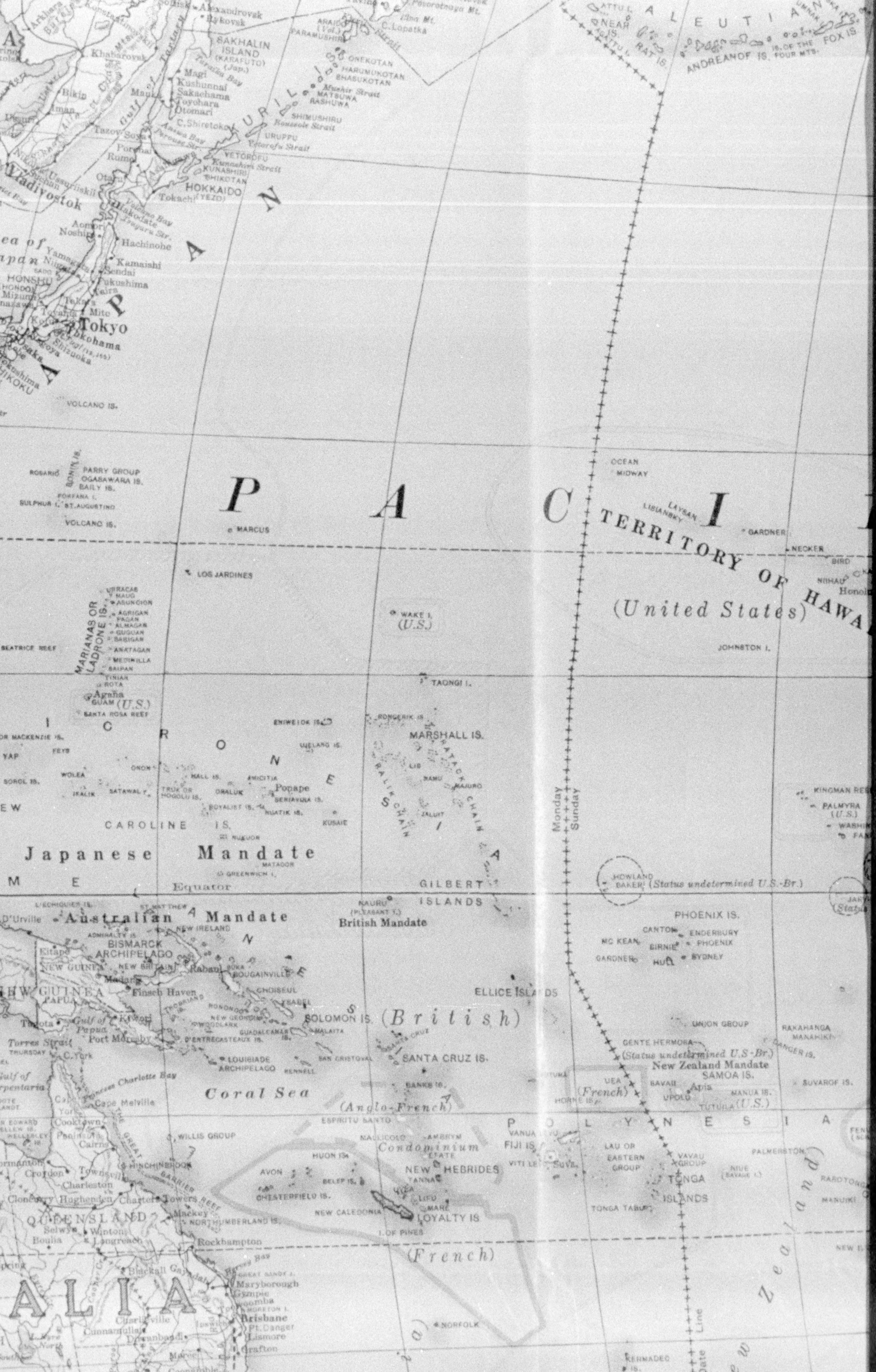
FRANZ JOSEF LAND
JACKSON I.
HALL
MC CLINTOCK I.
Queen Victoria Sea
VICTORIA I.
ALEXANDRA I.
Cambridge Bay
PRINCE GEORGE I.
WHITE I.
C. Leigh Smith
SEVEN IS.
C. Platen
North East Land
Inland Ice above 2,000 Feet high
KING CHARLES IS.
SPITSBERGEN
BARENTS I.
EDGE I.
Storfjord
Spitsbergen
Horn Sound
South Cape
Mt. Hornsundstind
HOPE I.
Average Limit of Packice
LODINENII (LONELY I.)
Cape Mauritius
Ice Cape
C. Middendorff
C. Nassau
NOVAYA ZEMLYA
Nordenskjöld Bay
Admiralty Pen.
C. Speedwell
C. Dalnii
PAKHTUSSOV I.
Matochkin Strait
Sukhoi Nos (Dry Cape)
C. Stolbovoi
Moller Bay
MESHDUSHARI I.
Kara Sea
Kara Strait
VAIGACH I.
Yugor Strait
Barents Sea
BEAR I.
SCOTT HANSEN IS.
KJELLMAN IS.
SVERDRUP IS.
KAMENNI I.
PIASINA I.
Northeast C.
DICKSON I.
SIBIRIAKOV I.
VILKITZKI I.
C. Tarasov
Yenisei Bay
Pyasina
Maloe
C. Krestovski
Dimarine
WHITE I.
C. Skuratov
C. Drovyanoi
Yalmal or Samoyedes Pen.
Gulf of Ob
C. Manchikov
C. Voronov
Kara Bay
Kara R.
Tundra
Pustozersk
OBDORSK MTS.
Obdorsk
C. Russki Savorot
Pechora Bay
Cheshskaya Bay
KOLGUEV I.
C. Kanin
Kanin Pen.
North Cape
Vardö
Varangerfjord
Alexandrovsk
Hammerfest
Murmansk
Kola
Murman Coast
Kola Peninsula
C. Orlov
MORZHOVETS
Mezen
Ust Tzilma
Ust Ussa
Pechora
Berezov
Sartynya
Tromsö
LOFOTEN IS.
Vestfjord
Bodö
Narvik
Lapland
Kandalaksha
Kandalakskaya Bay
White Sea
Archangel
Mezen
Pamomes
Kem
Soroka
Onega
Dvina
Yarensk
Ust Sisolsk
Kotlas
Veliki Ustug
Arctic Circle
Norwegian Sea
Southern Limit of Driftice
Bröno
Bindalsfjord
Namsenfjord
Namsos
Trondhjemsfjord
Trondhjem
Christiansund
Aalesund
Sognefjord
Bergen
Haugesund
Stavanger
Christiansand
Skien
Hamar
Christiania
Drammen
NORWAY
SWEDEN
FINLAND
Umeå
Gulf of Bothnia
Uleaborg
Kajana
Nurmes
Joensuu
Vasa
Björneborg
Sundsvall
Gefle
Raumo
Helsingfors
Viborg
Lake Ladoga
Lake Onega
Petrozavodsk
Gulf of Finland
Stockholm
Reval
Petrograd
Novgorod
Valdai Hills
Vologda
Yaroslav
Vyatka
Perm
Dedyukhino
Solevarni
Ekaterinburg
URAL MTS.
Nizhni Novgorod
Kazan
Vladimir
Tver
Moscow
RUSSIA
EUROPE
ASIA
SIBERIA
ESTHONIA
LATVIA
LITHUANIA
Dvinsk
Libau
Memel
Kovno
Vilna
Vitebsk
Smolensk
Minsk
Bryansk
Tula
Orel
Kursk
Tambov
Voronezh
Penza
Syzran
Saratof
Samara
Tsaritsin
Kalmykov
Volga
Astrakhan
Stavropol
Armavir
Maikop
Ekaterinodar
Yeisk
Rostov
Don
Kharkov
Kiev
UKRAINE
Ekaterinoslav
Nikolaiev
Odessa
Kherson
Crimea
Kertch
Sea of Azov
Sevastopol
Novorossisk
Gomel
Brest Litovsk
Pinsk
Lemberg
Krakow
Warsaw
POLAND
Lodz
Königsberg
Danzig
Baltic Sea
GOTLAND
ÖLAND
Kalmar
Göteborg
Skagerrack
Kattegat
Copenhagen
Malmö
DENMARK
Aarhus
Esbjerg
North Sea
Dogger Bank
HELIGOLAND (Ger.)
Flensburg
Cuxhaven
Hamburg
Bremen
Stettin
Berlin
Dresden
Breslau
GERMANY
NETH.
Amsterdam
The Hague
Rotterdam
Cologne
Leipzig
Frankfort
Nürnberg
Stuttgart
Munich
Vienna
Prague
CZECHOSLOVAKIA
Budapest
HUNGARY
Szegedin
RUMANIA
Kronstadt
Galatz
Bucharest
Kishinev
Jassy
Black Sea
FAROE IS. (Dan.)
Thorshavn
SHETLAND IS.
ORKNEY IS.
Kirkwall
HEBRIDES
Kinnaird Head
SCOTLAND
Edinburgh
Glasgow
Newcastle
Hull
BRITISH ISLES
IRELAND
Irish Sea
Dublin
Cork
WALES
ENGLAND
London
Cardiff
Bristol
Portsmouth
Plymouth
Lands End
Queenstown
SCILLY IS.
English Channel
Paris
FRANCE
Brest
St. Nazaire
Nantes
Tours
Limoges
Lyon
Bay of Biscay
Metz
Strassburg
Basel
Trieste
Milan

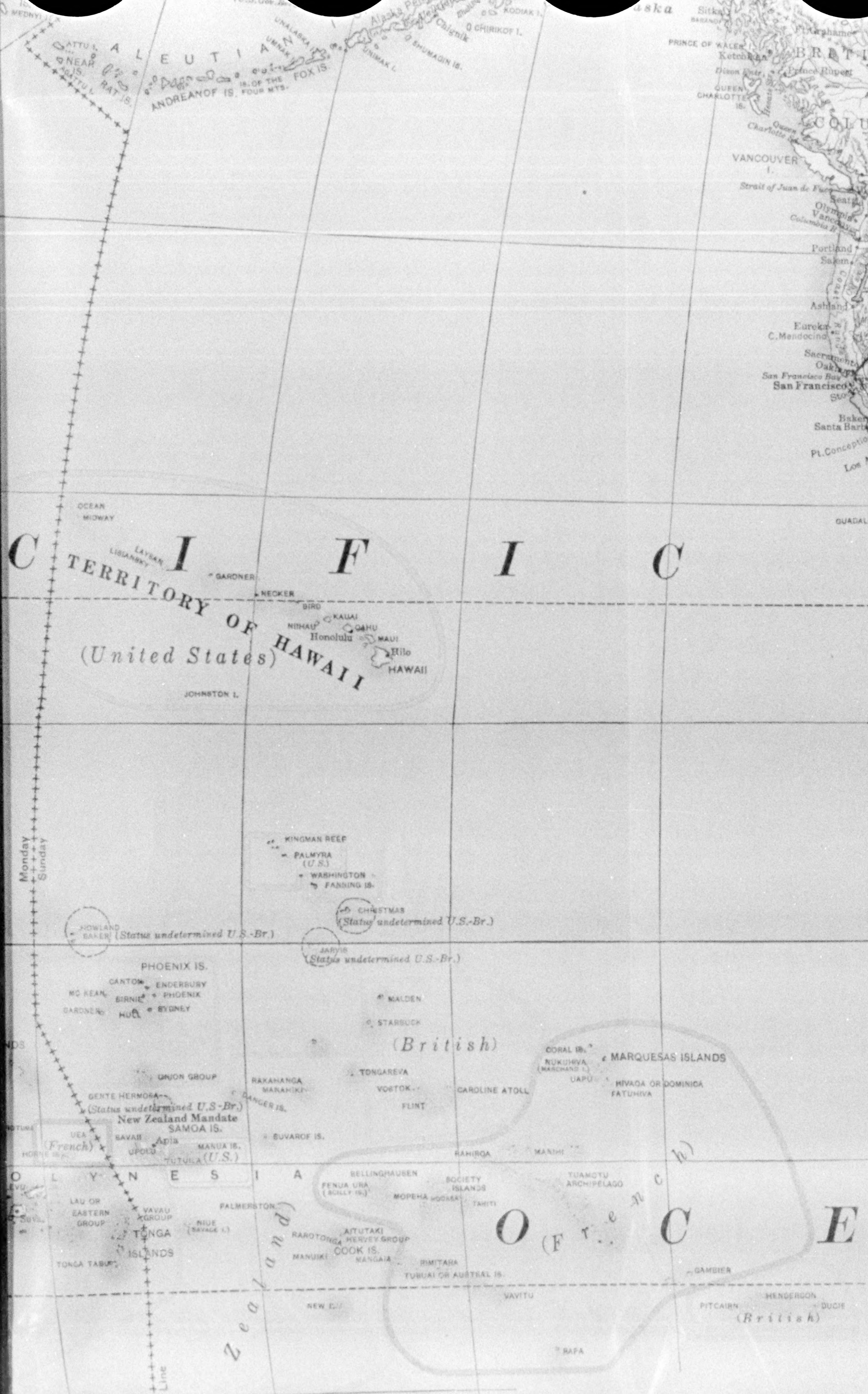

SOUTH POLAR REGION
SOUTH AMERICA
Punta Arenas
Strait of Magellan
Cape Horn
FALKLAND IS. (Br.)
SOUTH SHETLANDS
Palmer Ar.
ELEPHANT I.
SOUTH GEORGIA
SOUTH ORKNEYS
SANDWICH GROUP
TRISTAN DA CUNHA
GOUGH I.
GRAHAM LAND
Alexander I. Land
Weddell Sea
Coats Land
Prince Regent Luitpold Land
South Pole
Amundsen, Dec. 16, 1911
Scott, Jan. 17, 1912
BOUVET I.
Cape Town
Cape of Good Hope
AFRICA
Enderby Land
Kemp Land
MARION I.
PRINCE EDWARD I.
CROZET IS.
MC DONALD I.
HEARD I.
KERGUELEN I. (Fr.)
ST. PAUL
Extreme Limit of Drift Ice
PACIFIC OCEAN
ATLANTIC OCEAN
ANTARCTIC OCEAN
INDIAN OCEAN
ANTARCTIC CIRCLE
UNEXPLORED
ANTARCTICA
Amundsen's Route
Antarctic Arch
Limit of Ice Pack
King Edward VII. Land
Mt. Erebus
Scott's Base
C. Adare
South Victoria Land
Magnetic Pole
WILKES LAND
Kaiser Wilhelm II. Land
Knox Land
Clarie Land
Adelie Land
CHATHAM IS.
BOUNTY IS.
ANTIPODEN I.
SCOTT I.
Wellington
Christchurch
CAMPBELL I.
BALLENY IS.
AUCKLAND IS.
EMERALD I.
MACQUARIE IS.
NEW ZEALAND
ROYAL COMPANY IS.
Hobart
TASMANIA
Sydney
Melbourne
AUSTRALIA
Adelaide
SIBERIA
CENTRAL ASIA
Kirghiz Steppe
Tundra
Golchikha
Tolstyi nos
Dudinskoe
Plakhino
Yenisei
Taz Bay
Poloi
Turukhansk
Obdorsk
Khorova
Yamskaya
Kazymskaya
Bakhtinskaya
Berezov
Kazym
Ob or Obi
Surgut
Vakh
Lumpakolskoe
Tim
Timskoe
Narym
Ket
Togur
Chulym
Ust Chulymskaya
Nikolaiev
Tomsk
Mariinsk
Taiga
Novo Nikolaievsk
Kolyvan
Kolchugino
Barnaul
Biisk
Tobolsk
Ust Ishim
Irtish
Tara
Tatarskaya
Kainsk
Omsk
Petropavlovsk
Ishim
Yalutorovsk
Tyumen
Saitkova
Nizhni Tagilsk
Perm
Ekaterinburg
URAL MTS.
POLITICAL BOUNDARY
NATURAL BOUNDARY
Kurgan
Makushino
L. Chani
Chulym
Slavgorod
Pavlodar
Troitsk
Uta
Zlatoust
Chelyabinsk
Kustanai
Kokchetav
Zmeinogorsk
Semipalatinsk
Mt. Belukha 14,900
Akmolinsk
Bayan Aulsk
Belagach
Atbasar
Ishim
Samara
Orenburg
Orsk
Ural
Tobol
L. Dengiz
Narinsk
Karkaralinsk
Uralsk
Iletsk
Aktyubinsk
Turgai
Irgiz
Ulutavsk
Aktavsk
Zaisan Nor
Zaisansk
Tarbagatai Mts.
Tulta
Baluntokhoi
Ala Kul
Uilskoe
Emba
Berchogur
Kalmykovsk
Chelkar
Saxaulskaya
Araiskoe-More
Lake Balkash
Mugodzhar Hills
Guriev
Kazalinsk
Kara-Uzyak
Kopal
Dzharkent
Aral Sea
Syr Darya
Perovsk
Chu
Suzak
Turkestan
Aris
Chimkent
Verni
Prshevalsk
Aksu
Kuchar
Manas
Tihuafu
Turfan
Turfan Depression 320 ft. below sea level
DZUNGARIA
Kizil Kum
Kungrad
Kabul-Sai
St. Alexandrovskii
Petrovsk
Caspian
Sea
Kirghiz
D
60°
45°
75°

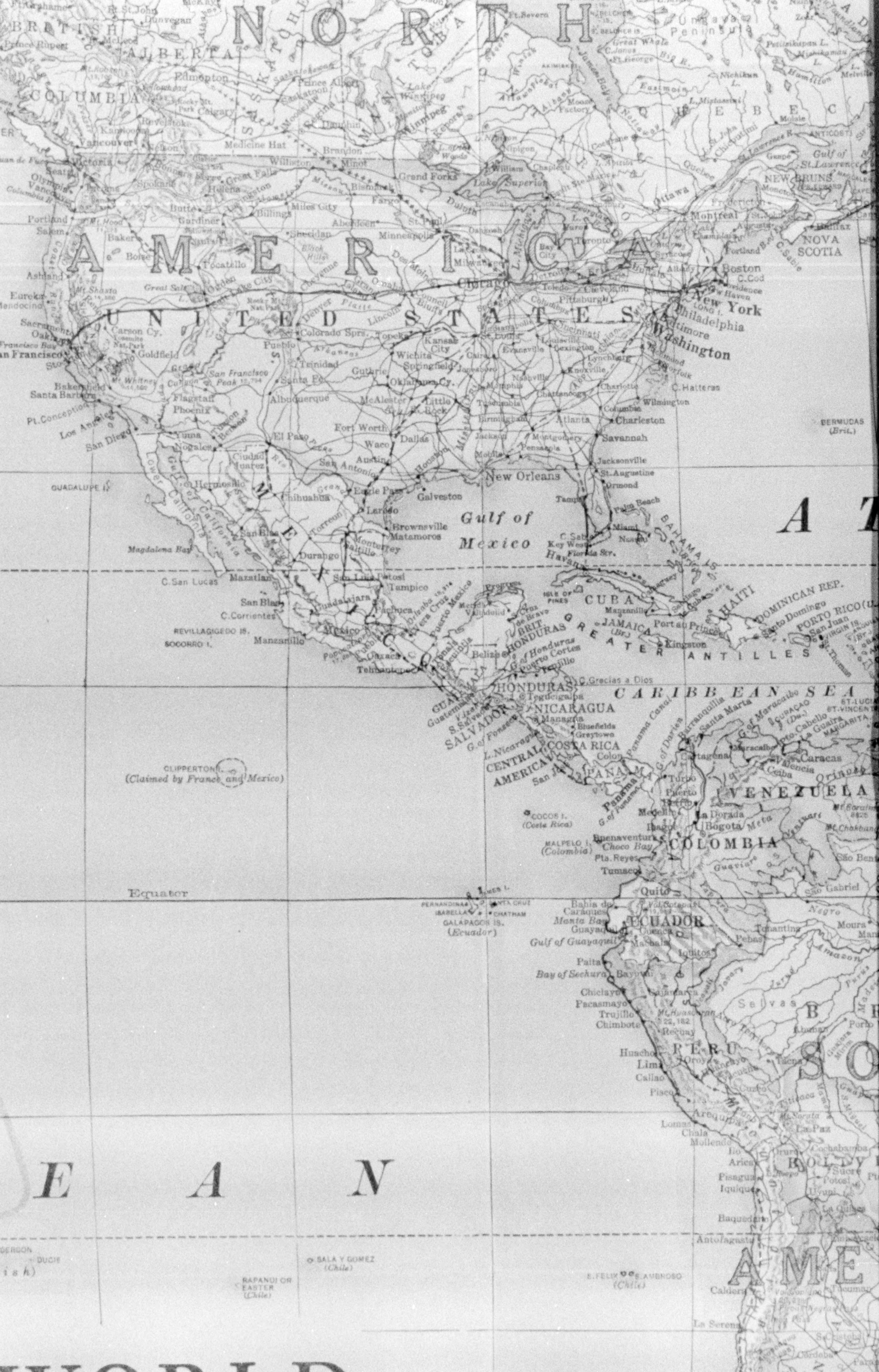


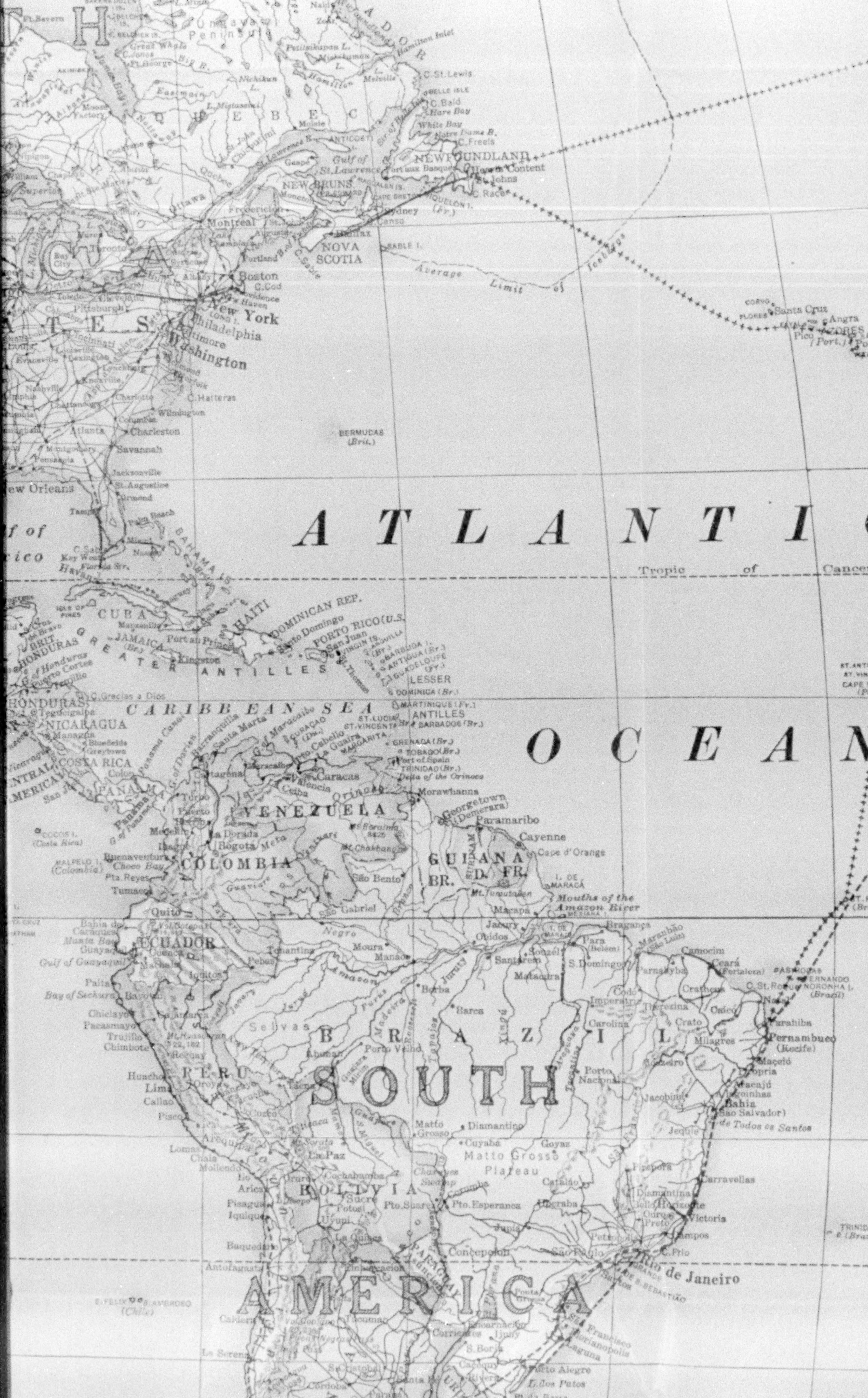
MONGOLIA
OUTER MONGOLIA
MANCHURIA
Desert of Gobi
Shamo
INNER MONGOLIA
SINKIANG
Hami
Tunhwang
Kobdo
Ulyasutai
Urga
Karakorum
Kerulen
Aigun
Mergen
Tsitsihar
Harbin
Changchun
Kirin
Ninguta
Mukden
Vladivostok
Peking
Tientsin
Port Arthur
Gulf of Chihli
Weihaiwei
Shantung Pen.
Tsingtau
CHOSEN (KOREA)
Seoul
Fusan
Sea of Japan
HONSHU (HONDO)
SHIKOKU
KYUSHU
Osaka
Kobe
Hiroshima
Nagasaki
Kagoshima
Shimonoseki
Yellow Sea
East China Sea
Quelpart I.
Van Diemen Str.
RYU-KYU OR LUCHU IS.
Tokara Str.
AMAMI GROUP
OKINAWA GROUP
YAYEYAMA IS.
ROSARIO I.
SULPHUR I.
TAIWAN (FORMOSA)
Taihoku
Karenko
Tainan
Formosa Strait
TIBET
Lhasa
Kuen Lun
Koko Nor
Lanchowfu
Sianfu
Hankow
Nanking
Shanghai
Ningpo
Wenchow
Foochow
Amoy
Swatow
Canton
Hongkong (Br.)
Macao (Port.)
Kwangchow (Fr.)
CHINA
Chengtu
Chungking
Yunnanfu
Kweiyang
Kweilin
Changsha
Nanchang
Ichang
Yangtze
Tung Ting L.
Poyang L.
BHUTAN
INDIA
Calcutta
Chittagong
Lunding
Comilla
Noakhali
BURMA
Mandalay
Bhamo
Prome
Rangoon
Bassein
Mouths of the Irrawaddy
Mouths of the Ganges
CHEDUBA I.
ANDAMAN IS.
Ten Degree Chan.
NICOBAR IS.
MERGUI ARCHIPELAGO
Tenasserim
SIAM
Bangkok
Korat
Gulf of Siam
Malay Peninsula
Singora
Kota Bharu
Penang
George Town
FEDERATED MALAY STATES
Kuala Lumpur
Malacca
Singapore
FRENCH INDO-CHINA
Hanoi
Haiphong
Hue
Quang Ngai
Saigon
Phan Rang
Cambodia Pt.
Can Tho
Gulf of Tonkin
HAINAN
Hainan Str.
South China Sea
BATAN IS.
Balintang Channel
BABUYAN IS.
Aparri
Laoag
Vigan
San Fernando
Lingayen Gulf
Baguio
PHILIPPINE ISLANDS (United States)
LUZON
Manila
CATANDUANES I.
Albay
Calapan
MINDORO
CALAMIANES IS.
PALAWAN
PANAY
Iloilo
NEGROS
Bacolod
CEBU
LEYTE
SAMAR
BOHOL
Surigao
Dapitan
Zamboanga
MINDANAO
Cotabato
Sulu Sea
JOLO
BALABAC I.
Kudat
Jesselton
Sandakan
Brunei
LABUAN
BRITISH NORTH BORNEO
Celebes Sea
NATOENA IS.
ANAMBAS IS.
Kuching
Pontianak
BORNEO
Bandjermasin
Menado
Gorontalo
Molucca Passage
Ternate
HALMAHERA
CELEBES
Makassar
Molucca Sea
Banda Sea
Amboina
BOETON
SALEIER
FLORES
TIMOR
Dilli (Port.)
Koepang
Timor Sea
Arafura Sea
SUMBA OR SANDALWOOD
SOEMBAWA
Bali
Lombok
JAVA
Java Sea
Batavia
Cheribon
Samarang
Soerabaja
Djokjakarta
Soerakarta
Sunda Strait
SUMATRA
Koeta Radja (Achin)
Medan
Padang
Palembang
Benkoelen
MENTAWEI ISLANDS
SIMEULOE I.
NIAS I.
BANKA
BILLITON
DUTCH EAST INDIES
SUNDA ISLANDS
CHRISTMAS I. (Br.)
COCOS OR KEELING IS. (Brit.)
PELEW IS.
YAP
ULUTHI OR MACKENZIE
SONSOL
MERIR
HELEN REEF
NEW GUINEA
Torres Str.
THURSDAY I.
Gulf of Carpentaria
GROOTE EYLANDT
WELLESLEY IS.
Port Essington
Darwin
Pine Creek
Roper
Daly Waters
Borroloola
Normanton
Cloncurry
NORTHERN TERRITORY
Tennant's Creek
Barrow's Creek
Macdonnell Range
L. Amadeus
Oodnadatta
L. Eyre
WESTERN AUSTRALIA
C. Londonderry
Wyndham
King Sound
Derby
Broome
C. Leveque
ROWLEY SHOALS
Port Hedland
Roebourne
DAMPIER ARCH.
Exmouth Gulf
North-West C.
Onslow
Carnarvon
Sharks Bay
DIRK HARTOG I.
HOUTMAN
Geraldton
Mt. Magnet
Meekatharra
Sandstone
Great Sandy Desert
Great Victoria Desert
Lady Edith Lagoon
L. Macdonald
AUSTRALIA
SOUTH
INDIAN
Tropic of Capricorn
45°
30°
15°
0°
15°
E
F
G
H
I

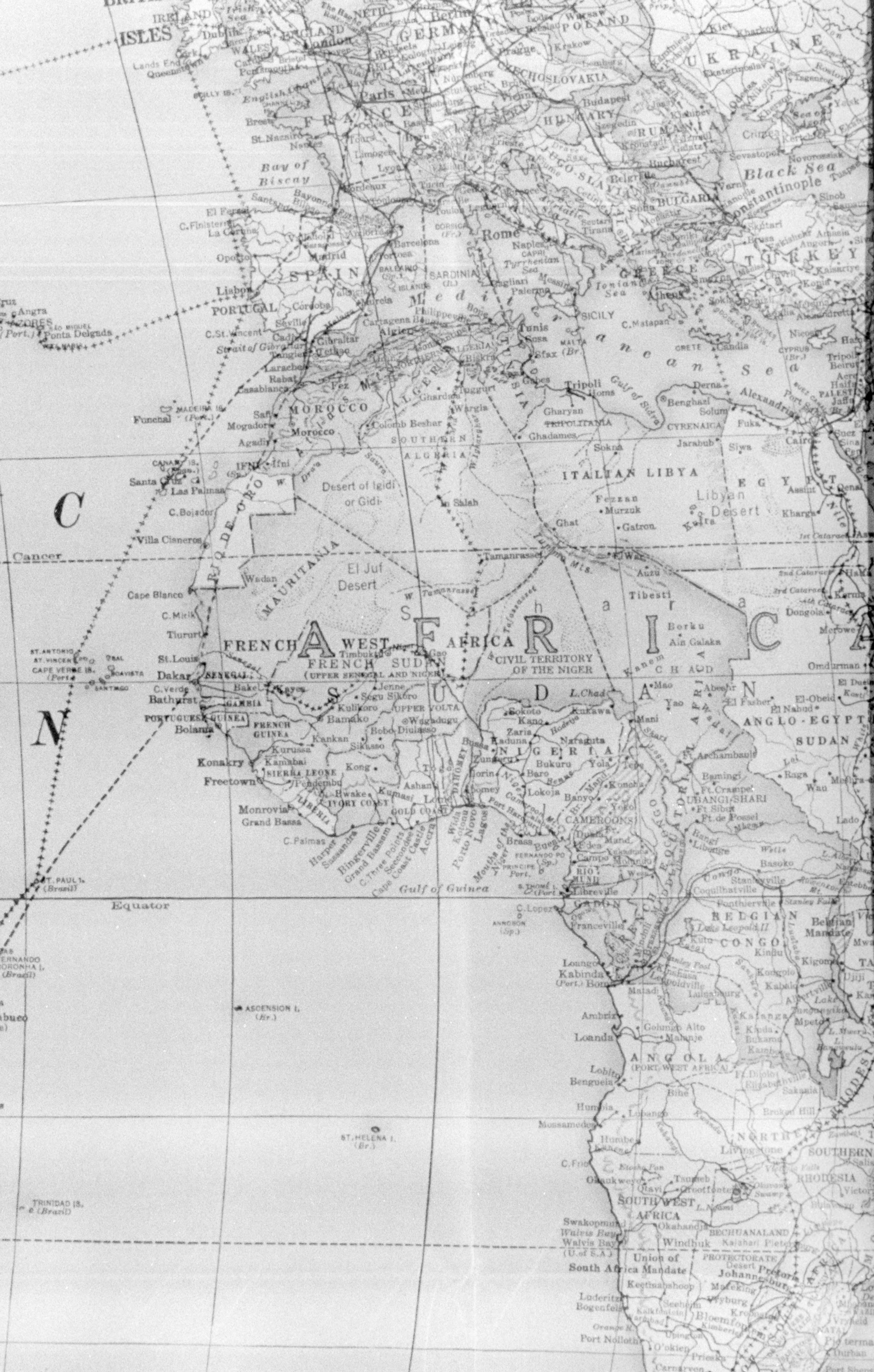


Alexandrovsk
Rykovsk
SAKHALIN ISLAND (KARAFUTO) (Jap.)
Khabarovsk
Gulf of Tartary
Bikin
Iman
Magi
Kushunnai
Sakaehama
Toyohara
Otomari
Maoka
C. Shiretoko
Tazov
Soya
Aniwa Bay
Perouse Str.
Rumoi
Otaru
Vladivostok
Ussuriiskii
Tokachi
HOKKAIDO (YEZO)
Volcano Bay
Hakodate
Tsugaru Str.
Aomori
Noshiro
Hachinohe
Sea of Japan
Yamagata
Niigata
SADO
Sendai
Kamaishi
Fukushima
HONSHU
HONDO
Mizuma
Mito
Tokyo
Yokohama
Shizuoka
Nagoya
Osaka
SHIKOKU
Paramushiro
ARAIDO (Vol.)
C. Lopatka
Alaid Mt.
Onekotan
HARUMUKOTAN
SHASUKOTAN
Mushir Strait
MATSUWA
RASHUWA
SHIMUSHIRU
Boussole Strait
URUPPU
Yetorofu Strait
YETOROFU
Kunashiri Strait
KUNASHIRI
SHIKOTAN
K U R I L E
J A P A N
ATTU I.
NEAR IS.
RAT IS.
A L E U T I A N
ANDREANOF IS.
IS. OF THE FOUR MTS.
FOX IS
UMNAK
VOLCANO IS.
ROSARIO
BONIN IS.
PARRY GROUP
OGASAWARA IS.
BAILY IS.
FORFANA I.
SULPHUR I.
ST. AUGUSTINO
VOLCANO IS.
P A C I
MARCUS
LOS JARDINES
OCEAN
MIDWAY
LAYSAN
LISIANSKY
TERRITORY OF HAWAI
(United States)
GARDNER
NECKER
BIRD
NIIHAU
Honolulu
JOHNSTON I.
WAKE I. (U.S.)
URACAS
MAUG
ASUNCION
AGRIGAN
PAGAN
ALMAGAN
GUGUAN
SARIGAN
ANATAGAN
MEDINILLA
SAIPAN
TINIAN
ROTA
MARIANAS OR LADRONE IS.
Agaña
GUAM (U.S.)
SANTA ROSA REEF
BEATRICE REEF
TAONGI I.
MACKENZIE IS.
YAP
FEYS
SOROL IS.
WOLEA
IFALIK
SATAWAL I.
ORON
TRUK OR HOGOLU IS.
HALL IS.
ORALUK
AMICITIA
Ponape
SENIAVINA IS.
ROYALIST IS.
MUATIK IS.
KUSAIE
NUKUOR
CAROLINE IS.
ENIWETOK IS.
UJELANG IS.
RONGERIK IS.
MARSHALL IS.
RATAK CHAIN
RALIK CHAIN
LIB
NAMU
MAJURO
JALUIT
M I C R O N E S I A
Japanese Mandate
GREENWICH I.
MATADOR
GILBERT ISLANDS
Equator
NAURU (PLEASANT I.)
British Mandate
Monday
Sunday
HOWLAND
BAKER
(Status undetermined U.S.-Br.)
KINGMAN REEF
PALMYRA (U.S.)
WASHINGTON
FANNING
JARVIS
(Status
PHOENIX IS.
CANTON
ENDERBURY
MC KEAN
BIRNIE
PHOENIX
GARDNER
HULL
SYDNEY
L'ECHIQUIER IS.
ST. MATTHEW
D'Urville
Australian Mandate
ADMIRALTY IS.
NEW IRELAND
BISMARCK ARCHIPELAGO
Eitape
NEW GUINEA
NEW BRITAIN
Rabaul
BUKA
BOUGAINVILLE
Madang
Finsch Haven
NEW GUINEA
PAPUA
CHOISEUL
YSABEL
TROBRIAND IS.
RONONGO
NEW GEORGIA
WOODLARK
GUADALCANAR IS.
MALAITA
D'ENTRECASTEAUX IS.
SOLOMON IS.
(British)
ELLICE ISLANDS
M E L A N E S I A
Tarota
Gulf of Papua
Kiwai
Port Moresby
Torres Strait
THURSDAY
C. York
LOUISIADE ARCHIPELAGO
SAN CRISTOVAL
RENNELL
SANTA CRUZ
SANTA CRUZ IS.
UNION GROUP
RAKAHANGA
MANAHIKI
DANGER IS.
GENTE HERMOSA
(Status undetermined U.S.-Br.)
New Zealand Mandate
SAMOA IS.
Gulf of Carpentaria
Princess Charlotte Bay
Cape Melville
Coral Sea
BANKS IS.
(Anglo-French)
FUTUNA
UEA
(French)
HORNE IS.
SAVAII
UPOLU
Apia
MANUA IS.
TUTUILA (U.S.)
SUVAROF IS.
Cooktown
Cairns
Peninsula
THE GREAT BARRIER REEF
ESPIRITU SANTO
MALICOLO
AMBRYM
Condominium
EFATE
P O L Y N E S I A
VANUA LEVU
FIJI IS.
VITI LEVU
Suva
LAU OR EASTERN GROUP
VAVAU GROUP
TONGA ISLANDS
TONGA TABU
NIUE (SAVAGE I.)
PALMERSTON
RAROTONGA
MANUIKI
Normanton
Croydon
Townsville
Charleston
Cloncurry
Hughenden
Charters Towers
WILLIS GROUP
HINCHINBROOK
HUON IS.
AVON
BELEP IS.
CHESTERFIELD IS.
NEW HEBRIDES
TANNA
UEA
LIFU
MARE
NEW CALEDONIA
LOYALTY IS
I. OF PINES
(French)
QUEENSLAND
Mackey
NORTHUMBERLAND IS.
Selwyn
Boulia
Winton
Longreach
Rockhampton
Blackall
Hervey Bay
GREAT SANDY I.
Maryborough
Gympie
Toowoomba
MORETON I.
Brisbane
Pt. Danger
Lismore
Grafton
Charleville
Cunnamulla
Dirranbandi
Moree
A L I A
NORFOLK
KERMADEC IS.
Date Line
New Zealand


MEDNYI I.
ATTU I.
NEAR IS.
AGATTU I.
RAT IS.
ALEUTIAN
ANDREANOF IS.
IS. OF THE FOUR MTS.
FOX IS.
UMNAK
UNALASKA I.
UNIMAK I.
Alaska Pen.
Chignik
SHUMAGIN IS.
CHIRIKOF I.
KODIAK I.
Sitka
PRINCE OF WALES I.
Ketchikan
Dixon Entr.
Prince Rupert
QUEEN CHARLOTTE IS.
Hecate Str.
Queen Charlotte Sd.
BRIT
COLU
VANCOUVER I.
Strait of Juan de Fuca
Seattle
Olympia
Vancouver
Columbia R.
Portland
Salem
Coast
Ashland
Eureka
C. Mendocino
Sacramento
Oakland
San Francisco Bay
San Francisco
Baker
Santa Barbara
Pt. Conception
Los
GUADAL
OCEAN
MIDWAY
LAYSAN
LISIANSKY
C I F I C
TERRITORY OF HAWAII
(United States)
GARDNER
NECKER
BIRD
KAUAI
NIIHAU
OAHU
Honolulu
MAUI
Hilo
HAWAII
JOHNSTON I.
KINGMAN REEF
PALMYRA
(U.S.)
WASHINGTON
FANNING IS.
CHRISTMAS
(Status undetermined U.S.-Br.)
HOWLAND
BAKER
(Status undetermined U.S.-Br.)
JARVIS
(Status undetermined U.S.-Br.)
Monday
Sunday
PHOENIX IS.
CANTON
ENDERBURY
MC KEAN
BIRNIE
PHOENIX
GARDNER
HULL
SYDNEY
MALDEN
STARBUCK
(British)
CORAL IS.
NUKUHIVA
(MARCHAND I.)
UAPU
MARQUESAS ISLANDS
HIVAOA OR DOMINICA
FATUHIVA
UNION GROUP
RAKAHANGA
MANAHIKI
TONGAREVA
DANGER IS.
VOSTOK
FLINT
CAROLINE ATOLL
GENTE HERMOSA
(Status undetermined U.S.-Br.)
New Zealand Mandate
SAMOA IS.
UEA
(French)
HORNE IS.
SAVAII
Apia
UPOLU
MANUA IS.
TUTUILA (U.S.)
SUVAROF IS.
RAHIROA
MANIHI
(French)
O L Y N E S I A
BELLINGHAUSEN
FENUA URA
(SCILLY IS.)
SOCIETY ISLANDS
MOPEHA
TAHITI
TUAMOTU ARCHIPELAGO
LAU OR EASTERN GROUP
VAVAU GROUP
PALMERSTON
NIUE
(SAVAGE I.)
TONGA ISLANDS
TONGA TABU
RAROTONGA
AITUTAKI
HERVEY GROUP
COOK IS.
MANUIKI
MANGAIA
RIMITARA
TUBUAI OR AUSTRAL IS.
O C E
GAMBIER
VAVITU
PITCAIRN
HENDERSON
DUCIE
(British)
NEW Z.
Zealand
RAPA
Line


NORTH
AMERICA
BRITISH
COLUMBIA
ALBERTA
Dunvegan
Pt. St. John
Prince Rupert
McLeod
Edmonton
Prince Albert
Saskatoon
Calgary
Revelstoke
Kamloops
Vancouver
Victoria
Seattle
Olympia
Medicine Hat
Regina
Moose Jaw
Brandon
Winnipeg
L. Winnipeg
Dauphin
Lake of the Woods
Nipigon
Fort William
Lake Superior
Sault Ste. Marie
Chapleau
Pt. Severn
James Bay
Moose Factory
Albany
Cochrane
Great Whale
Ungava Peninsula
QUEBEC
Quebec
Montreal
Ottawa
Toronto
Gulf of St. Lawrence
ANTICOSTI
Gaspe
NEW BRUNSWICK
Moncton
Fredericton
Halifax
NOVA SCOTIA
C. Sable
Hamilton
Melville
Portland
Boston
C. Cod
Providence
New Haven
New York
Philadelphia
Baltimore
Washington
Norfolk
C. Hatteras
Wilmington
Charleston
Savannah
Jacksonville
St. Augustine
Ormond
Palm Beach
Miami
Tampa
Key West
Florida Str.
BAHAMA IS.
BERMUDAS (Brit.)
UNITED STATES
Williston
Minot
Grand Forks
Fargo
Bismarck
Duluth
St. Paul
Minneapolis
Aberdeen
Milwaukee
Chicago
Detroit
Toledo
Cleveland
Pittsburgh
Buffalo
Albany
Syracuse
Columbus
Cincinnati
Louisville
Lexington
Indianapolis
St. Louis
Evansville
Cairo
Nashville
Knoxville
Lynchburg
Richmond
Charlotte
Chattanooga
Atlanta
Birmingham
Memphis
Montgomery
Pensacola
Mobile
Jackson
New Orleans
Gulf of Mexico
Galveston
Houston
San Antonio
Austin
Waco
Dallas
Fort Worth
Little Rock
McAlester
Oklahoma Cy.
Guthrie
Wichita
Springfield
Kansas City
Topeka
Lincoln
Omaha
Council Bluffs
Des Moines
Denver
Colorado Sprs.
Pueblo
Trinidad
Santa Fe
Albuquerque
El Paso
Cheyenne
Sheridan
Billings
Miles City
Butte
Helena
Great Falls
Spokane
Gardiner
Pocatello
Boise
Baker
Ogden
Salt Lake City
Great Salt L.
Portland
Salem
Mt. Hood
Ashland
Mt. Shasta
Eureka
Mendocino
Sacramento
Oakland
San Francisco
San Francisco Bay
Stockton
Carson Cy.
Goldfield
Fresno
Mt. Whitney
Bakersfield
Santa Barbara
Pt. Conception
Los Angeles
San Diego
Yuma
Phoenix
Flagstaff
Tucson
Nogales
San Francisco Peak
Ciudad Juarez
Hermosillo
Chihuahua
Lower California
Gulf of California
GUADALUPE I.
Magdalena Bay
C. San Lucas
MEXICO
Eagle Pass
Laredo
Torreon
Monterrey
Saltillo
Brownsville
Matamoros
Durango
Mazatlan
San Blas
San Luis Potosi
Tampico
Guadalajara
C. Corrientes
Manzanillo
REVILLAGIGEDO IS.
SOCORRO I.
Pachuca
Mexico
Orizaba
Vera Cruz
Puerto Mexico
Oaxaca
Tehuantepec
Merida
Progreso
Belize
BRIT. HONDURAS
G. of Honduras
Puerto Cortes
Trujillo
C. Gracias a Dios
HONDURAS
Tegucigalpa
GUATEMALA
S. Salvador
SALVADOR
G. of Fonseca
NICARAGUA
Managua
Bluefields
Greytown
L. Nicaragua
COSTA RICA
CENTRAL AMERICA
San Jose
Colon
PANAMA
Panama
G. of Panama
Panama Canal
G. of Darien
CLIPPERTON I.
(Claimed by France and Mexico)
COCOS I.
(Costa Rica)
MALPELO I.
(Colombia)
CUBA
Havana
ISLE OF PINES
Manzanillo
Santiago
JAMAICA (Br.)
Kingston
HAITI
Port au Prince
DOMINICAN REP.
Santo Domingo
PORTO RICO (U.S.)
San Juan
VIRGIN IS.
St. Thomas
GREATER ANTILLES
CARIBBEAN SEA
ST. LUCIA
ST. VINCENT
MARGARITA
CURAÇAO (Du.)
G. of Maracaibo
Maracaibo
Barranquilla
Santa Marta
Cartagena
Puerto Cabello
La Guaira
Caracas
Valencia
Orinoco
VENEZUELA
Turbo
Medellin
La Dorada
Bogota
Buenaventura
Choco Bay
Pta. Reyes
Tumaco
COLOMBIA
Meta
Guaviare
Sao Gabriel
Negro
Quito
Bahia de Caraquez
Manta Bay
Guayaquil
Gulf of Guayaquil
ECUADOR
Cuenca
Machala
Iquitos
Paita
Bay of Sechura
Chiclayo
Pacasmayo
Trujillo
Chimbote
Mt. Huascaran 22,182
PERU
Huacho
Lima
Callao
Oroya
Pisco
Arequipa
Mollendo
Lomas
Chala
Arica
Pisagua
Iquique
Antofagasta
Baquedano
Caldera
La Serena
Tacna
La Paz
Oruro
Cochabamba
Sucre
Potosi
Uyuni
BOLIVIA
Titicaca
Equator
FERNANDINA
ISABELLA
CHATHAM
GALAPAGOS IS.
(Ecuador)
SALA Y GOMEZ
(Chile)
RAPANUI OR EASTER
(Chile)
E. FELIX
S. AMBROSO
(Chile)
DUCIE
Amazon
Selvas
Manaos
Moura
Pebas
Tonantins
SOUTH
AMERICA
A T
E A N
WORLD


Ungava Peninsula
Great Whale
Ft. George
Eastmain
L. Mistassini
Q U E B E C
Moose Factory
Hamilton Inlet
Hamilton
Melville
C. St. Lewis
Belle Isle
C. Bald
Hare Bay
White Bay
Notre Dame B.
C. Freels
Anticosti
Gulf of St. Lawrence
Gaspé
NEWFOUNDLAND
Heart's Content
St. Johns
C. Race
Port aux Basques
Magdalen Is.
Cape Breton
Miquelon I. (Fr.)
Sydney
Canso
NEW BRUNS.
Moncton
Fredericton
St. John
Halifax
NOVA SCOTIA
Sable I.
C. Sable
Montreal
Ottawa
Quebec
Superior
Toronto
Albany
Boston
C. Cod
Providence
New Haven
New York
Long I.
Philadelphia
Baltimore
Washington
Pittsburgh
Cleveland
Toledo
Detroit
Buffalo
Cincinnati
Louisville
Lexington
Evansville
Nashville
Knoxville
Chattanooga
Atlanta
Charlotte
Wilmington
C. Hatteras
Columbia
Charleston
Savannah
Jacksonville
St. Augustine
New Orleans
Montgomery
Pensacola
Tampa
Key West
Florida Str.
Havana
Average Limit of Icebergs
Corvo
Flores
Santa Cruz
Angra
Pico
AZORES (Port.)
BERMUDAS (Brit.)
A T L A N T I C
Tropic of Cancer
O C E A N
BAHAMA IS.
Nassau
CUBA
Isle of Pines
Manzanillo
HAITI
Port au Prince
DOMINICAN REP.
Santo Domingo
PORTO RICO (U.S.)
San Juan
VIRGIN IS.
St. Thomas
JAMAICA (Br.)
Kingston
GREATER ANTILLES
BRIT. HONDURAS
Gulf of Honduras
Puerto Cortes
Trujillo
C. Gracias a Dios
HONDURAS
Tegucigalpa
NICARAGUA
Managua
Bluefields
Greytown
COSTA RICA
Colon
PANAMA
Panama Canal
G. of Panama
G. of Darien
CENTRAL AMERICA
CARIBBEAN SEA
LESSER ANTILLES
Anguilla
Barbuda I.
Antigua (Br.)
Guadeloupe (Fr.)
Dominica (Br.)
Martinique (Fr.)
St. Lucia
St. Vincent
Barbados (Br.)
Grenada (Br.)
Tobago (Br.)
Port of Spain
Trinidad (Br.)
Delta of the Orinoco
Curaçao (Du.)
G. of Maracaibo
Margarita
Barranquilla
Santa Marta
Cartagena
Caracas
Valencia
La Guaira
Pto. Cabello
VENEZUELA
Orinoco
Morawhanna
Georgetown (Demerara)
Paramaribo
Cayenne
Cape d'Orange
GUIANA BR. SURINAM D. FR.
Mt. Roraima
Mt. Chahbanda
Mt. Tumuthahan
I. de Maracá
Mouths of the Amazon River
Medellin
Bogota
La Dorada
Ibague
Buenaventura
Choco Bay
Pta. Reyes
Tumaco
COLOMBIA
Meta
Guaviare
São Bento
São Gabriel
Cocos I. (Costa Rica)
Malpelo I. (Colombia)
Quito
ECUADOR
Guayaquil
Gulf of Guayaquil
Cuenca
Machala
Bay of Sechura
Payta
Chiclayo
Pacasmayo
Trujillo
Chimbote
Mt. Huascaran 22,182
PERU
Huacho
Lima
Callao
Pisco
Cuzco
Arequipa
Lomas
Chala
Mollendo
Ilo
Arica
Pisagua
Iquique
Tocopilla
Antofagasta
Caldera
La Serena
S. Felix
S. Ambrosio (Chile)
Iquitos
Negro
Amazon
Tunantins
Moura
Manaos
Obidos
Santarem
Para (Belem)
Braganca
Maranhão (São Luiz)
Camocim
Ceará (Fortaleza)
Fernando Noronha I. (Brazil)
C. St. Roque
Natal
Parahiba
Pernambuco (Recife)
Maceió
Aracaju
Bahia (São Salvador)
B. de Todos os Santos
Jequié
Caravellas
Victoria
Campos
C. Frio
Rio de Janeiro
São Paulo
Santos
I. de S. Sebastião
Paranagua
São Francisco
Florianopolis
Laguna
Porto Alegre
L. dos Patos
Borba
Barca
Porto Velho
Madeira
Purus
Jurua
Tapajos
Xingu
Araguaya
Tocantins
Selvas
B R A Z I L
SOUTH
AMERICA
Matto Grosso
Diamantino
Cuyaba
Matto Grosso Plateau
Goyaz
Catalão
Uberaba
Diamantina
Bello Horizonte
Ouro Preto
Porto Nacional
Carolina
Imperatriz
Codó
Therezina
Crato
Crathews
Caicó
Milagres
Joazeiro
Jacobina
Pirapora
São Francisco
Cochabamba
BOLIVIA
La Paz
Oruro
Sucre
Potosi
Uyuni
Sorata
Titicaca
Chiquitos Swamp
Corumba
Pto. Suarez
Pto. Esperanca
Concepcion
Asuncion
PARAGUAY
Parana
Corrientes
Encarnacion
S. Borja
Tucuman
Cordoba
Santa Fe
Ponta Grossa
Uruguay


ISLES
IRELAND
ENGLAND
London
WALES
Lands End
Queenstown
English Channel
Paris
FRANCE
GERMANY
Berlin
POLAND
Warsaw
Krakow
CZECHOSLOVAKIA
Budapest
HUNGARY
UKRAINE
Kiev
Kharkov
Ekaterinoslav
Odessa
RUMANIA
Bucharest
Sevastopol
Novorossisk
Black Sea
Constantinople
BULGARIA
Sofia
JUGO-SLAVIA
Belgrade
Adriatic Sea
Trieste
Brest
St. Nazaire
Nantes
Tours
Limoges
Lyon
Bordeaux
Toulouse
Bay of Biscay
Bayonne
Bilbao
Santander
El Ferrol
C. Finisterre
La Coruña
Oporto
Madrid
SPAIN
Lisbon
PORTUGAL
Cordoba
Seville
Cadiz
Gibraltar
C. St. Vincent
Strait of Gibraltar
Tangier
Barcelona
BALEARIC IS.
Murcia
Cartagena
Algiers
Tunis
Sousa
Sfax
Gabes
Rome
Naples
CORSICA (Fr.)
SARDINIA (It.)
Cagliari
Tyrrhenian Sea
Palermo
Messina
SICILY
MALTA (Br.)
Ionian Sea
C. Matapan
GREECE
Athens
CRETE
Candia
TURKEY
Smyrna
Angora
Sinob
Adalia
Konia
Kaisariye
CYPRUS (Br.)
Nicosia
Tripoli
Beirut
Acre
Haifa
PALESTINE
Jaffa
Suez
Sinai
Cairo
Port Said
Alexandria
Mediterranean Sea
Tripoli
Homs
Gulf of Sidra
Benghazi
Derna
CYRENAICA
TRIPOLITANIA
Gharyan
Ghadames
Sokna
Jarabub
Siwa
Fuka
Solum
ITALIAN LIBYA
EGYPT
Libyan Desert
Assiut
Kharga
Nile
1st Cataract
2nd Cataract
3rd Cataract
Fezzan
Murzuk
Gatron
Kufra
Ghat
Tibesti
Auzu
Borku
Ain Galaka
Tamanrasset
In Salah
Wargla
Tuggurt
Ghardaia
Biskra
ALGERIA
Colomb Bechar
SOUTHERN ALGERIA
Desert of Igidi or Gidi
MOROCCO
Morocco
Fez
Rabat
Casablanca
Larache
Saffi
Mogador
Agadir
Ifni
IFNI
MADEIRA IS. (Port.)
Funchal
AZORES (Port.)
Angra
San Miguel
Ponta Delgada
CANARY IS. (Spain)
Santa Cruz
Las Palmas
C. Bojador
Villa Cisneros
RIO DE ORO
Cancer
Cape Blanco
C. Mirik
Tiururt
MAURITANIA
El Juf Desert
Wadan
ST. ANTONIO
ST. VINCENT
SAL
BOAVISTA
CAPE VERDE IS. (Port.)
SANTIAGO
St. Louis
Dakar
SENEGAL
C. Verde
Bathurst
GAMBIA
PORTUGUESE GUINEA
Bolama
FRENCH GUINEA
Konakry
Freetown
SIERRA LEONE
Kambia
Kurussa
Kankan
Pendembu
Monrovia
Grand Bassa
LIBERIA
C. Palmas
Harper
Sassandra
IVORY COAST
Bingerville
Grand Bassam
C. Three Points
Sekondee
Cape Coast Castle
Accra
GOLD COAST
Kumasi
Ashanti
Lome
TOGO
DAHOMEY
Wida
Kotonu
Porto Novo
Lagos
Kong
Bwake
Sikasso
Bobo Diulasso
Wagadugu
UPPER VOLTA
Bamako
Kulikoro
Segu Sikoro
Jenne
Bakel
Kayes
Timbuktu
Gao
FRENCH WEST AFRICA
FRENCH SUDAN (UPPER SENEGAL AND NIGER)
CIVIL TERRITORY OF THE NIGER
Sahara
AFRICA
SUDAN
Sokoto
Kano
Zaria
Kaduna
Kukawa
L. Chad
NIGERIA
Bussa
Zungeru
Ilorin
Bukuru
Baro
Lokoja
Naraguta
Yola
Benue
Niger
Mouths of the Niger
Brass
Port Harcourt
Calabar
Buea
Duala
Edea
CAMEROONS
Kribi
Campo
Garua
Banyo
Ngaundere
Koncha
Mani
Mao
Yao
Abeshr
CHAD
Kanem
FRENCH EQUATORIAL AFRICA
Fort Archambault
El Fasher
El Obeid
El Nahud
Bamingi
Ft. Crampel
UBANGI-SHARI
Ft. Sibut
Ft. de Possel
Bangui
Libenge
Shari
Ubangi
FERNANDO PO (Sp.)
PRINCIPE (Port.)
S. THOMÉ I. (Port.)
Gulf of Guinea
RIO MUNI
Libreville
GABON
C. Lopez
ANNOBON (Sp.)
Franceville
Loango
Kabinda (Port.)
Boma
Matadi
Kinshasa
Leopoldville
Brazzaville
Stanley Pool
Coquilhatville
Lake Leopold II
BELGIAN CONGO
Stanleyville
Stanley Falls
Ponthierville
Basoko
Kindu
Kongolo
Kabalo
Albertville
Kigoma
Ujiji
Lake Tanganyika
Mpeto
Katanga
Kiambi
Bukama
Kambove
Elisabethville
Ft. Dilolo
Sakania
Broken Hill
Belgian Mandate
Luluaburg
Ambriz
Golungo Alto
Malanje
Loanda
ANGOLA (PORT. WEST AFRICA)
Lobito
Benguela
Bihe
Humpata
Lubango
Mossamedes
Humbe
C. Frio
Etosha Pan
Okaukweyo
Tsumeb
Grootfontein
Otavi
SOUTH WEST AFRICA
Okahandja
Swakopmund
Walvis Bay
Walvis Bay (U. of S.A.)
Windhuk
Union of South Africa Mandate
Keetmanshoop
Luderitz
Bogenfels
Orange R.
Port Nolloth
O'okiep
Kalahari Desert
BECHUANALAND PROTECTORATE
Mafeking
Vryburg
Kimberley
Bloemfontein
Kroonstad
Johannesburg
Pretoria
Prieska
Carnarvon
Vryheid
NATAL
Pietermaritzburg
Durban
Livingstone
NORTHERN RHODESIA
SOUTHERN RHODESIA
Victoria Falls
Okavango Swamp
L. Ngami
Bulawayo
Omdurman
Dongola
Merowe
Kerma
Halfa
ANGLO-EGYPTIAN SUDAN
Raga
Wau
Lado
Bahr el Ghazal
ST. PAUL I. (Brazil)
Equator
FERNANDO NORONHA I. (Brazil)
ASCENSION I. (Br.)
ST. HELENA I. (Br.)
TRINIDAD IS. (Brazil)
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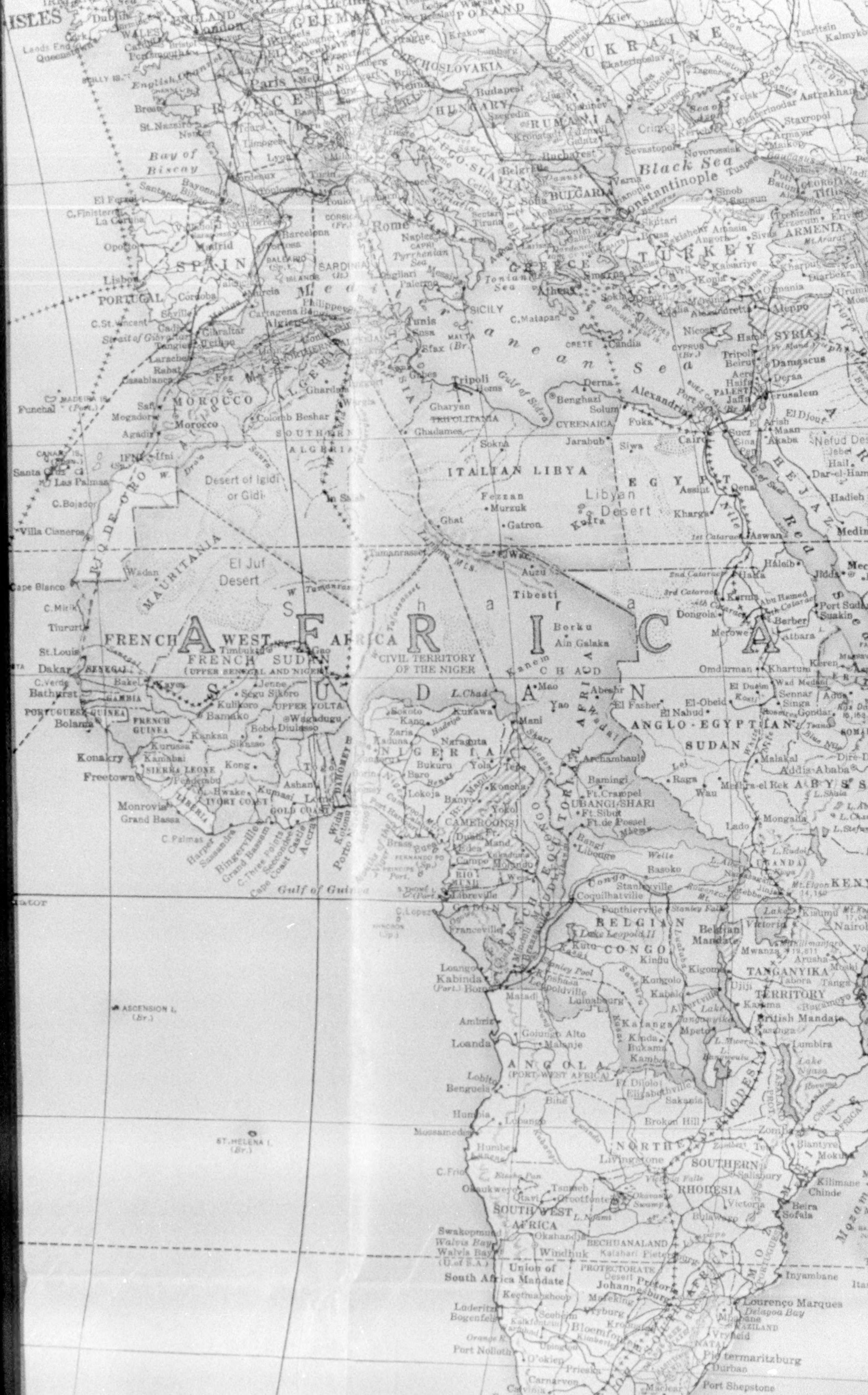
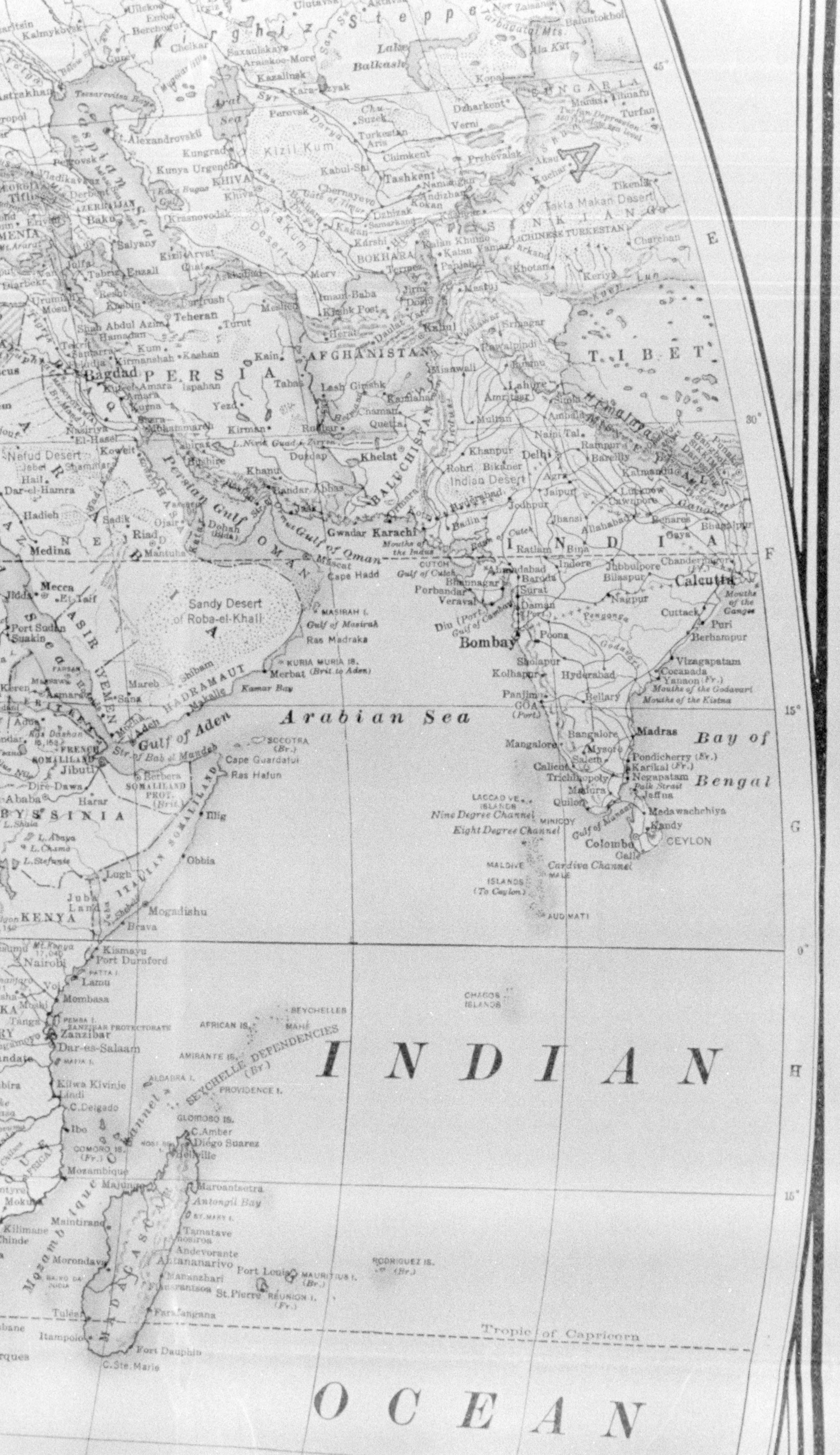
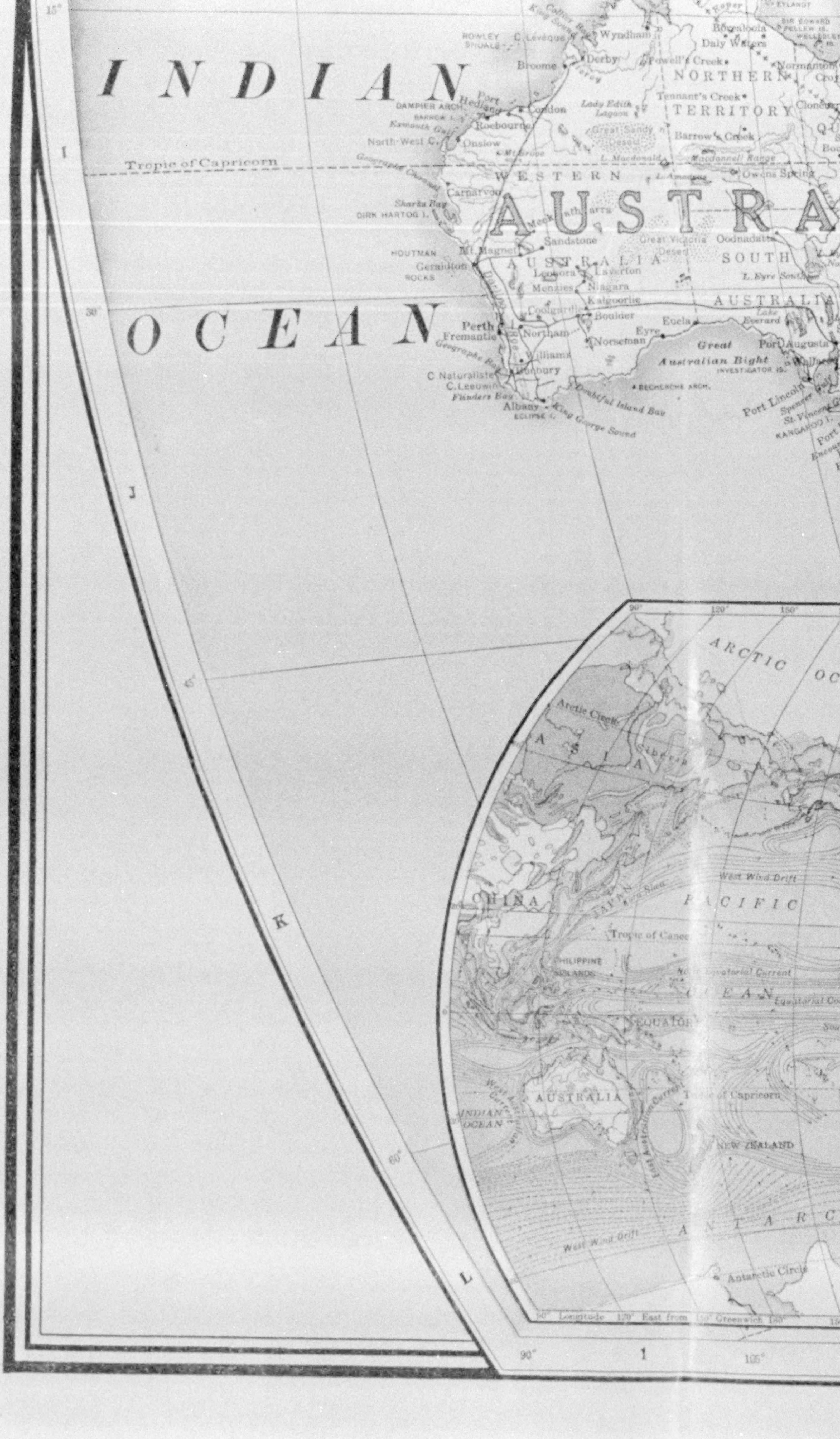
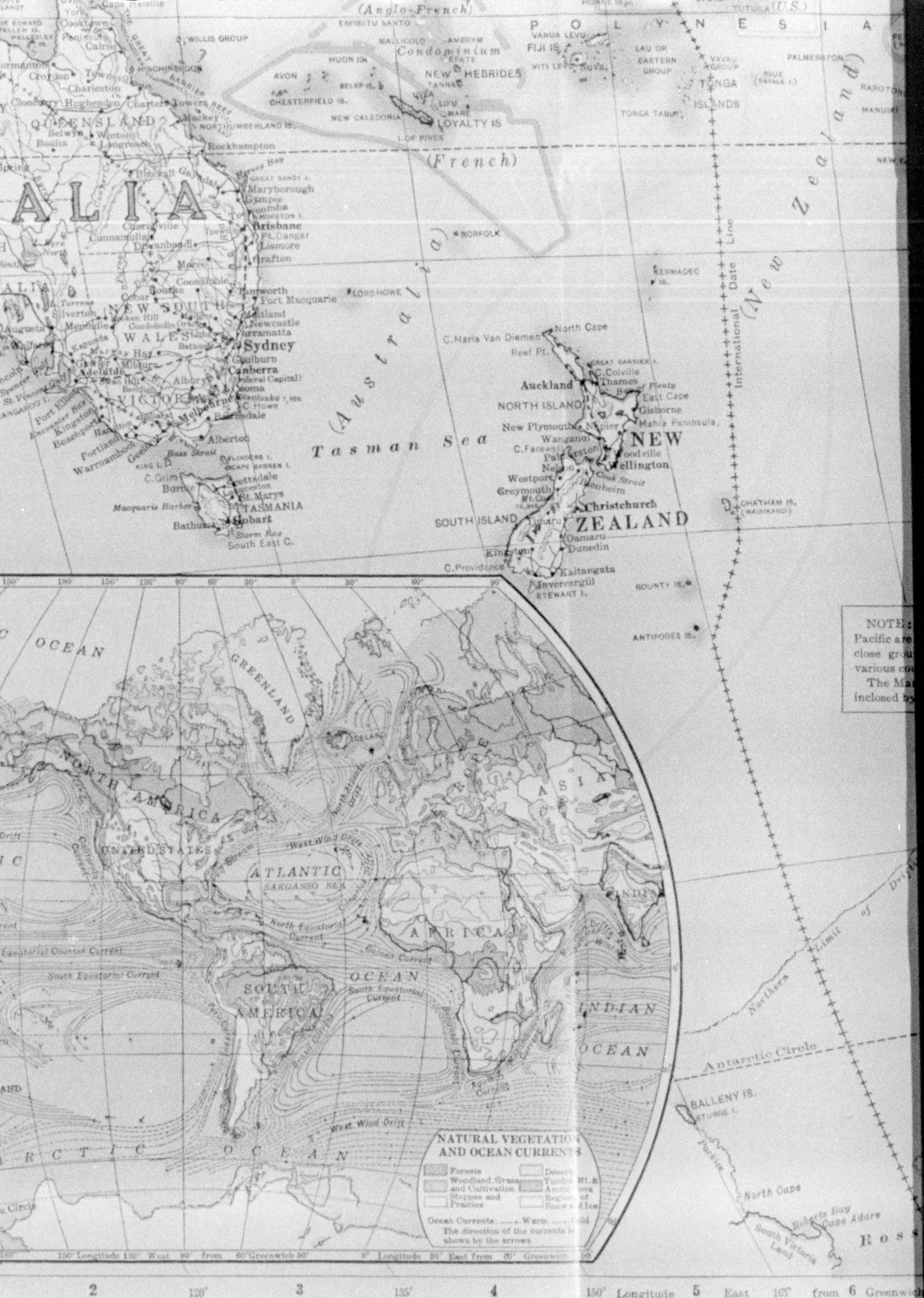
N


ISLES
ENGLAND
London
WALES
GERMANY
POLAND
UKRAINE
CZECHOSLOVAKIA
Paris
FRANCE
HUNGARY
Budapest
RUMANIA
Bucharest
JUGO-SLAVIA
BULGARIA
Black Sea
Constantinople
Bay of Biscay
SPAIN
Madrid
PORTUGAL
Lisbon
Rome
SARDINIA
SICILY
GREECE
Athens
TURKEY
ARMENIA
SYRIA
Damascus
Jerusalem
Mediterranean Sea
Strait of Gibraltar
MOROCCO
ALGERIA
Algiers
Tunis
Tripoli
TRIPOLITANIA
CYRENAICA
ITALIAN LIBYA
EGYPT
Cairo
Alexandria
Libyan Desert
Desert of Igidi or Gidi
El Juf Desert
RIO DE ORO
MAURITANIA
AFRICA
Sahara
FRENCH WEST AFRICA
FRENCH SUDAN
CIVIL TERRITORY OF THE NIGER
SUDAN
Tibesti
Borku
CHAD
L. Chad
Red Sea
HEJAZ
ANGLO-EGYPTIAN SUDAN
Khartum
Omdurman
ABYSSINIA
SENEGAL
Dakar
GAMBIA
PORTUGUESE GUINEA
FRENCH GUINEA
SIERRA LEONE
Freetown
LIBERIA
Monrovia
IVORY COAST
GOLD COAST
Accra
NIGERIA
CAMEROONS
UBANGI-SHARI
Gulf of Guinea
Equator
ASCENSION I. (Br.)
ST. HELENA I. (Br.)
GABON
FRENCH EQUATORIAL AFRICA
BELGIAN CONGO
Belgian Mandate
UGANDA
KENYA
L. Victoria
TANGANYIKA TERRITORY British Mandate
ANGOLA (PORT. WEST AFRICA)
Loanda
NORTHERN RHODESIA
SOUTHERN RHODESIA
SOUTH WEST AFRICA
Union of South Africa Mandate
BECHUANALAND PROTECTORATE
Windhuk
Johannesburg
Bloemfontein
Lourenço Marques
Durban
Pietermaritzburg
NATAL
Port Shepstone
Port Nolloth


Kirghiz Steppe
Kalmykovsk
Berchogur
Chelkar
Saxaulskaya
Araiskoe-More
Kazalinsk
Kara-Uzyak
Lake Balkash
Kopal
Nor Zaisang
Arbagatai Mts.
Baluntokhoi
Ala Kul
45°
Astrakhan
Gurev
Caspian Sea
Aral Sea
Syr Darya
Perovsk
Chu
Suzak
Turkestan
Aris
Dzharkent
Verni
Dzungaria
Manas
Tihuafu
Turfan
Turfan Depression
Ft. Alexandrovski
Kungrad
Kizil Kum
Chimkent
Przhevalsk
Aksu
Kuchar
Petrovsk
Kunya Urgench
Kabul-Sai
Tashkent
Namangan
Andizhan
Kokan
Tiflis
Derbent
Vladikavkaz
Khiva
Chernyayevo
Gate of Timur
Dzhizak
Samarkand
Kagan
Azerbaijan
Baku
Krasnovodsk
Kara Kum
Karshi
Bokhara
Kalan Khumb
Kalan Yamar
Yarkand
Sinkiang
Chinese Turkestan
Takla Makan Desert
Tikenlik
Charchan
Armenia
Mt. Ararat
Erivan
Salyany
Kizil Arvat
Chat
Askhabad
Termez
Pehiah
Khotan
Keriya
Kuen Lun
Julfa
Tabriz
Enzali
Merv
Mashad
Diarbekr
Resht
Kasbin
Urumia
Mosul
Barfrush
Teheran
Imam-Baba
Kushk Post
Jirm
Dosh
Herat
Srinagar
Shah Abdul Azim
Hamadan
Turut
Tigris
Tekrit
Samarra
Kum
Kirmanshah
Kashan
Kain
Afghanistan
Kabul
Rawalpindi
Tibet
Bagdad
Persia
Ispahan
Tabas
Lash Girishk
Kandahar
Mianwali
Jammu
Lahore
Amritsar
Simla
Himalaya Mts.
Kut-el-Amara
Kurna
Yezd
Chaman
Quetta
Multan
Ambala
Mohammerah
Kirman
Rudbar
Naini Tal
Rampur
Bareilly
Sikkim
Darjeeling
Gangtok
Nasiriya
El-Hasa
Koweit
Bushire
Duzdap
Khelat
Baluchistan
Khanpur
Delhi
Nepal
Nefud Desert
Jebel Shammar
Hail
Khanu
Bandar Abbas
Rohri
Bikaner
Indian Desert
Agra
Katmandu
Mt. Everest
Dar-el-Hamra
Persian Gulf
Hyderabad
Jaipur
Lucknow
Cawnpore
Ganges
Hadieh
Sadik
Ojair
Dohah
Jask
Jodhpur
Jhansi
Allahabad
Benares
Bhagalpur
Medina
Nejd
Riad
Mantuha
Gwadar
Karachi
Badin
Mouths of the Indus
Rann of Cutch
Gaya
India
Ratlam
Bina
Indore
Gulf of Oman
Oman
Muscat
Cape Hadd
Cutch
Gulf of Cutch
Ahmadabad
Baroda
Jubbulpore
Bilaspur
Chandernagore (Fr.)
Calcutta
F
Mecca
Et Taif
Jidda
Sandy Desert of Roba-el-Khali
Arabia
Masirah I.
Gulf of Masirah
Ras Madraka
Porbandar
Veraval
Bhavnagar
Surat
Daman (Port.)
Nagpur
Diu (Port.)
Gulf of Cambay
Mouths of the Ganges
Cuttack
Puri
Berhampur
Port Sudan
Suakin
Asir
Bombay
Poona
Godavari
Shibam
Hadramaut
Kuria Muria Is. (Brit. to Aden)
Merbat
Sholapur
Kolhapur
Vizagapatam
Cocanada
Yanaon (Fr.)
Mouths of the Godavari
Mouths of the Kistna
Massawa
Asmara
Keren
Eritrea
Yemen
Mareb
Sana
Hyderabad
Makalla
Kamar Bay
Panjim
Goa (Port.)
Bellary
Aden
Mocha
Arabian Sea
15°
Gulf of Aden
Socotra (Br.)
Madras
Bay of Bengal
Str. of Bab el Mandeb
French Somaliland
Jibuti
Cape Guardafui
Ras Hafun
Mangalore
Bangalore
Mysore
Pondicherry (Fr.)
Karikal (Fr.)
Negapatam
Palk Strait
Calicut
Salem
Trichinopoly
Dire-Dawa
Berbera
Somaliland Prot. (Brit.)
Madura
Jaffna
Harar
Laccadive Islands
Nine Degree Channel
Minicoy
Quilon
Gulf of Manaar
Abyssinia
Illig
Medawachchiya
Kandy
Ceylon
Colombo
Galle
Eight Degree Channel
G
L. Abaya
L. Chamo
L. Stefanie
Obbia
Maldive Islands (To Ceylon)
Male
Cardiva Channel
Lugh
Italian Somaliland
Juba Land
Mogadishu
Kenya
Brava
Addu Atoll
0°
Mt. Kenya 17,040
Kismayu
Port Durnford
Nairobi
Patta I.
Lamu
Voi
Mombasa
Chagos Islands
Pemba I.
Tanga
Zanzibar Protectorate
Zanzibar
Seychelles
Mahé
African Is.
Dar-es-Salaam
Mafia I.
Amirante Is.
Seychelle Dependencies (Br.)
Indian
H
Aldabra I.
Providence I.
Kilwa Kivinje
Lindi
C. Delgado
Glorioso Is.
C. Amber
Ibo
Comoro Is. (Fr.)
Nosi Be
Diego Suarez
Hellville
Mozambique
Mozambique Channel
Majunga
Maroantsetra
Antongil Bay
15°
St. Mary I.
Maintirano
Madagascar
Tamatave
Kilimane
Chinde
Andevorante
Morondava
Antananarivo
Port Louis
Mauritius I. (Br.)
Rodriguez Is. (Br.)
Bassas da India
Mananzhari
Fianarantsoa
St. Pierre
Reunion I. (Fr.)
Tulear
Farafangana
Tropic of Capricorn
Itampolo
Fort Dauphin
C. Ste. Marie
Ocean
30°
E


INDIAN
OCEAN
Tropic of Capricorn
AUSTRA
WESTERN
AUSTRALIA
NORTHERN
TERRITORY
SOUTH
AUSTRALIA
Great Australian Bight
Great Sandy Desert
Great Victoria Desert
Wyndham
Derby
Broome
C. Lévêque
Rowley Shoals
King Sound
Collier Bay
Port Hedland
Condon
Roebourne
Dampier Arch.
Barrow I.
Exmouth Gulf
North-West C.
Onslow
Mt Bruce
Geographe Channel
Carnarvon
Sharks Bay
Dirk Hartog I.
Meekatharra
Sandstone
Mt. Magnet
Houtman Rocks
Geraldton
Leonora
Laverton
Menzies
Niagara
Kalgoorlie
Coolgardie
Boulder
Perth
Fremantle
Northam
Norseman
Eucla
Eyre
Williams
Bunbury
Geographe Bay
C. Naturaliste
C. Leeuwin
Flinders Bay
Albany
Eclipse I.
King George Sound
Doubtful Island Bay
Recherche Arch.
Investigator Is.
Port Lincoln
Port Augusta
Spencer Gulf
St. Vincent Gulf
Kangaroo I.
Lake Everard
L. Eyre South
Oodnadatta
Lady Edith Lagoon
L. Macdonald
L. Amadeus
Macdonnell Range
Owens Spring
Barrow's Creek
Tennant's Creek
Powell's Creek
Daly Waters
Borroloola
Roper
Normanton
Sir Edward Pellew Is.
Wellesley Is.
Cloncurry
15°
30°
45°
60°
I
J
K
L
ARCTIC OCEAN
Arctic Circle
ASIA
Siberia
CHINA
JAPAN
PACIFIC
OCEAN
West Wind Drift
Tropic of Cancer
Philippine Islands
North Equatorial Current
Equatorial Current
EQUATOR
AUSTRALIA
West Australian Current
East Australian Current
Tropic of Capricorn
INDIAN OCEAN
NEW ZEALAND
West Wind Drift
ANTARCTIC
Antarctic Circle
90° Longitude 120° East from 150° Greenwich 180°
90°
105°
120°
150°
1


(Anglo-French)
ESPIRITU SANTO
P O L Y N E S I A
TUTUILA (U.S.)
VANUA LEVU
FIJI IS.
VITI LEVU
Suva
LAU OR EASTERN GROUP
MALLICOLO
AMBRYM
Condominium
EFATE
NEW HEBRIDES
TANNA
HUON IS.
AVON
BELEP IS.
CHESTERFIELD IS.
NEW CALEDONIA
LIFU
MARE
LOYALTY IS.
I. OF PINES
(French)
VAVAU GROUP
TONGA ISLANDS
TONGA TABU
NIUE (SAVAGE I.)
PALMERSTON
RAROTONGA
MANUIKI
WILLIS GROUP
Cooktown
Cairns
Croydon
Townsville
Charleston
Cloncurry
Hughenden
Charters Towers
Mackey
NORTHUMBERLAND IS.
QUEENSLAND
Winton
Longreach
Boulia
Rockhampton
Hervey Bay
GREAT SANDY I.
Maryborough
Gympie
Toowoomba
MORETON I.
Brisbane
Pt. Danger
Lismore
Grafton
Cunnamulla
Charleville
Bourke
Cobar
NEW SOUTH WALES
Tamworth
Port Macquarie
Maitland
Newcastle
Parramatta
Sydney
Goulburn
Canberra
(Federal Capital)
Cooma
Mt. Kosciusko
C. Howe
Broken Hill
Silverton
Mildura
Adelaide
Bendigo
VICTORIA
Melbourne
Bairnsdale
Albury
Alberton
Geelong
Warrnambool
Portland
Bass Strait
KING I.
FLINDERS I.
CAPE BARREN I.
C. Grim
Burnie
Launceston
St. Marys
Macquarie Harbor
TASMANIA
Hobart
Bathurst
Storm Bay
South East C.
A L I A
(Australia)
NORFOLK
LORD HOWE
Tasman Sea
KERMADEC IS.
C. Maria Van Diemen
North Cape
Reef Pt.
GREAT BARRIER I.
C. Colville
Thames
Bay of Plenty
East Cape
Auckland
Gisborne
NORTH ISLAND
Mahia Peninsula
New Plymouth
Napier
Wanganui
NEW
C. Farewell
Palmerston
Woodville
Wellington
Nelson
Cook Strait
Westport
Blenheim
Greymouth
Christchurch
SOUTH ISLAND
Timaru
ZEALAND
Oamaru
Dunedin
Kingston
C. Providence
Kaitangata
Invercargill
STEWART I.
CHATHAM IS. (WARIKAURI)
BOUNTY IS.
ANTIPODES IS.
International Date Line
(New Zealand)
NOTE:
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Northern Limit of Drift
Antarctic Circle
BALLENY IS.
STURGE I.
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North Cape
Roberts Bay
Cape Adare
South Victoria Land
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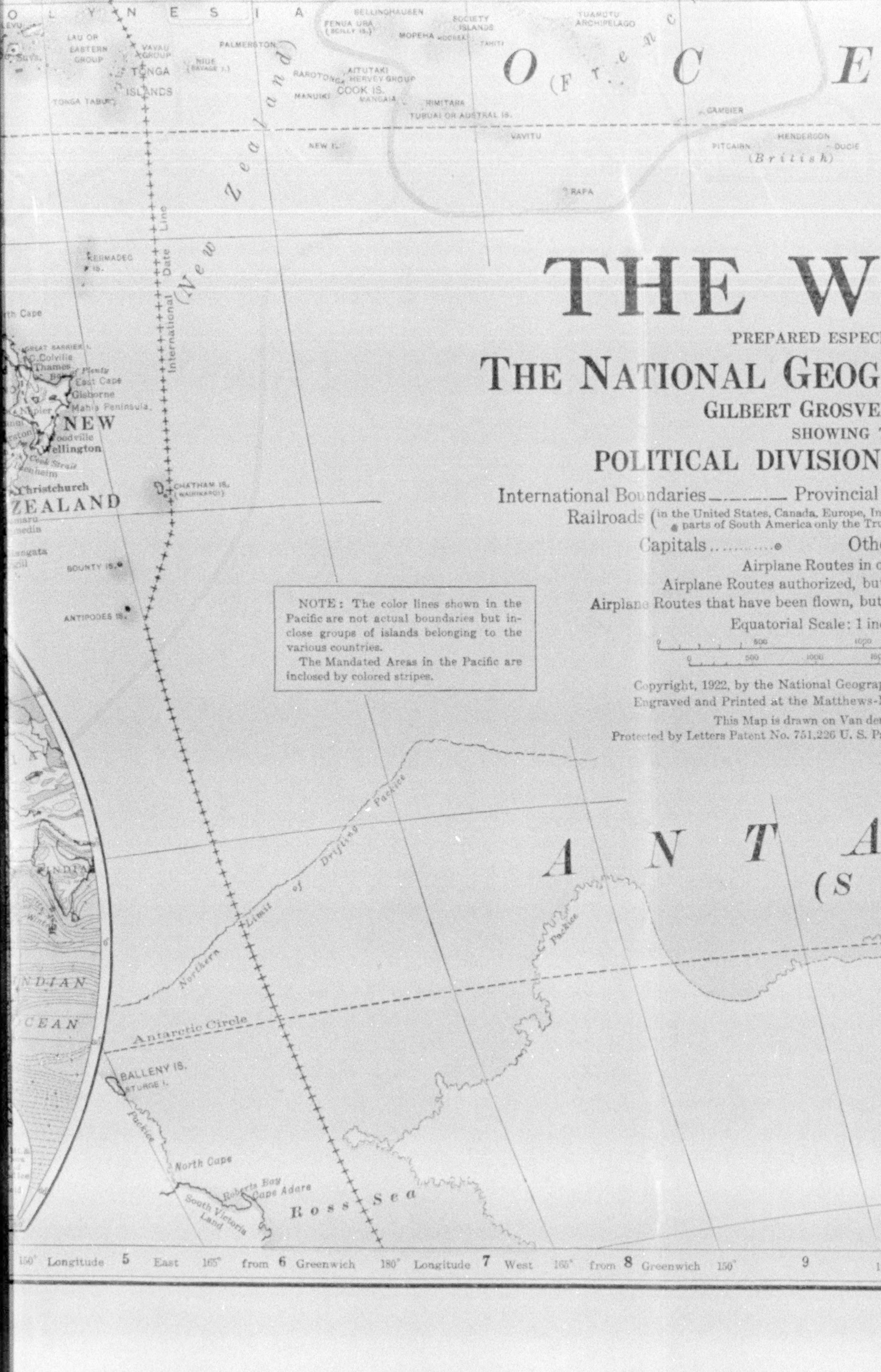
180° 150° 120° 90° 60° 30° 0° 30° 60° 90°
OCEAN
GREENLAND
ICELAND
NORTH AMERICA
EUROPE
ASIA
UNITED STATES
California Current
Gulf Stream
West Wind Drift
North Atlantic Drift
ATLANTIC
SARGASSO SEA
Canaries Drift
North Equatorial Current
Equatorial Counter Current
South Equatorial Current
Guinea Current
AFRICA
INDIA
Monsoon Drifts
SOUTH AMERICA
Peru Current
Brazil Current
OCEAN
South Equatorial Current
Benguela Current
Mozambique Current
Agulhas Current
INDIAN OCEAN
West Wind Drift
ARCTIC
OCEAN
Circle
NATURAL VEGETATION AND OCEAN CURRENTS
Forests
Woodland, Grass and Cultivation
Steppes and Prairies
Desert
Tundra, Mt. & Arctic Flora
Regions of Snow and Ice
Ocean Currents: Warm Cold
The direction of the currents is shown by the arrows
150° Longitude 120° West 90° from 60° Greenwich 30° 0° Longitude 30° East from 60° Greenwich 90°
2 120° 3 135° 4 150° Longitude 5 East 165° from 6 Greenwich


P O L Y N E S I A
LAU OR EASTERN GROUP
VAVAU GROUP
TONGA ISLANDS
TONGA TABU
NIUE (SAVAGE I.)
PALMERSTON
BELLINGHAUSEN
FENUA URA (SCILLY IS.)
MOPEHA
SOCIETY ISLANDS
TAHITI
TUAMOTU ARCHIPELAGO
O C E
(F r e n c h
RAROTONGA
AITUTAKI
HERVEY GROUP
COOK IS.
MANUIKI
MANGAIA
HIMITARA
TUBUAI OR AUSTRAL IS.
GAMBIER
VAVITU
NEW I.
PITCAIRN
HENDERSON
DUCIE
(British)
RAPA
(New Zealand)
KERMADEC IS.
International Date Line
North Cape
GREAT BARRIER I.
C. Colville
Thames
B. of Plenty
East Cape
Gisborne
Mahia Peninsula
Napier
NEW ZEALAND
Woodville
Wellington
Cook Strait
Blenheim
Christchurch
Oamaru
Dunedin
CHATHAM IS. (WARIKAURI)
BOUNTY IS.
ANTIPODES IS.
INDIA
INDIAN OCEAN
Northern Limit of Drifting Packice
Packice
Antarctic Circle
BALLENY IS.
STURGE I.
North Cape
Roberts Bay
Cape Adare
South Victoria Land
Ross Sea
A N T A
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150° Longitude 5 East 165° from 6 Greenwich 180° Longitude 7 West 165° from 8 Greenwich 150° 9

THE W

PREPARED ESPEC

THE NATIONAL GEOG

GILBERT GROSVE

SHOWING

POLITICAL DIVISION

International Boundaries —·—·—·— Provincial

Railroads (in the United States, Canada, Europe, In
parts of South America only the Tru

Capitals..........◉ Othe

Airplane Routes in o

Airplane Routes authorized, but

Airplane Routes that have been flown, but

Equatorial Scale: 1 in

0
500
1000
0
500
1000
15

Copyright, 1922, by the National Geograp

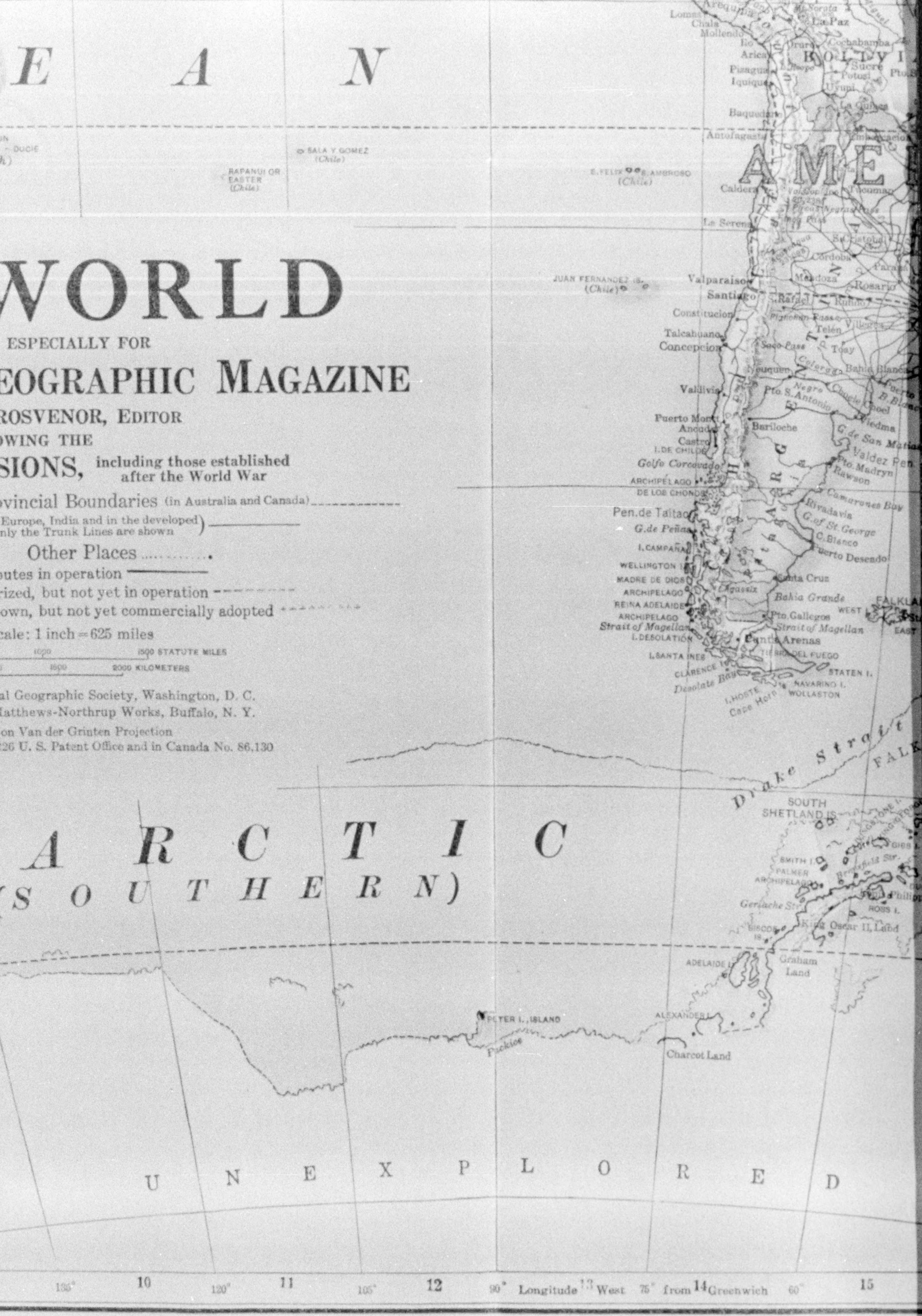
Engraved and Printed at the Matthews-

This Map is drawn on Van de

Protected by Letters Patent No. 751,226 U. S. P

NOTE: The color lines shown in the Pacific are not actual boundaries but inclose groups of islands belonging to the various countries.

The Mandated Areas in the Pacific are inclosed by colored stripes.



WORLD

ESPECIALLY FOR

EOGRAPHIC MAGAZINE

ROSVENOR, EDITOR

OWING THE

SIONS, including those established after the World War

ovincial Boundaries (in Australia and Canada)

Europe, India and in the developed) nly the Trunk Lines are shown

Other Places

outes in operation

rized, but not yet in operation

own, but not yet commercially adopted

cale: 1 inch = 625 miles

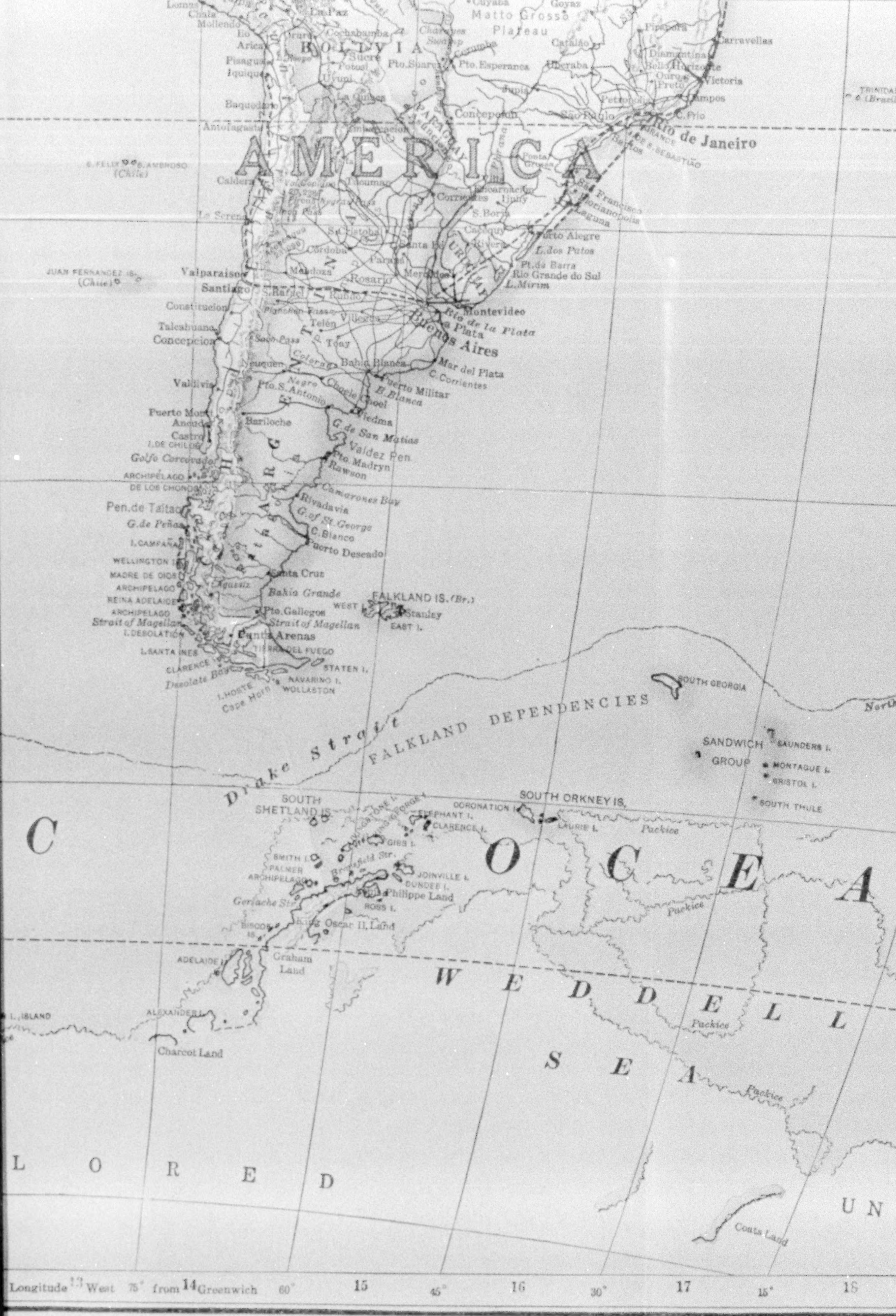
al Geographic Society, Washington, D. C.

Matthews-Northrup Works, Buffalo, N. Y.

on Van der Grinten Projection

226 U. S. Patent Office and in Canada No. 86,130

E A N
DUCIE
SALA Y GOMEZ (Chile)
RAPANUI OR EASTER (Chile)
S. FELIX S. AMBROSO (Chile)
JUAN FERNANDEZ IS. (Chile)
1000 1500 STATUTE MILES
1500 2000 KILOMETERS
Lomas
Arequipa
Chala
Mollendo
La Paz
Cochabamba
BOLIVIA
Arica
Sucre
Potosi
Pisagua
Iquique
Uyuni
Baquedano
Antofagasta
AMERICA
Caldera
Tucuman
La Serena
Cordoba
Valparaiso
Santiago
Mendoza
Rosario
Constitucion
Talcahuano
Concepcion
Neuquen
Bahia Blanca
Valdivia
Pto. S. Antonio
Puerto Montt
Ancud
Castro
Bariloche
I. DE CHILOE
Golfo Corcovado
G. de San Matias
Valdez Pen
Pto. Madryn
Rawson
ARCHIPELAGO DE LOS CHONOS
Pen. de Taitao
G. de Peñas
Camarones Bay
Rivadavia
G. of St. George
C. Blanco
Puerto Desendo
I. CAMPAÑA
WELLINGTON I.
MADRE DE DIOS ARCHIPELAGO
REINA ADELAIDE ARCHIPELAGO
Santa Cruz
Bahia Grande
Pto. Gallegos
Strait of Magellan
I. DESOLATION
Punta Arenas
I. SANTA INES
TIERRA DEL FUEGO
CLARENCE I.
STATEN I.
Desolate Bay
I. HOSTE
NAVARINO I.
WOLLASTON
Cape Horn
FALKLAND
WEST
EAST
Drake Strait
SOUTH SHETLAND IS.
SMITH I.
PALMER ARCHIPELAGO
Gerlache Str.
ROSS I.
King Oscar II. Land
BISCOE IS.
ADELAIDE I.
Graham Land
ALEXANDER I.
PETER I. ISLAND
Charcot Land
A R C T I C
(S O U T H E R N)
U N E X P L O R E D
135°
10
120°
11
105°
12
90°
Longitude 13 West 75° from 14 Greenwich
60°
15



Lomas
Chala
Mollendo
La Paz
Ilo
Oruro
Cochabamba
Arica
BOLIVIA
Sucre
Pisagua
Potosi
Iquique
Uyuni
Pto.Suarez
Corumba
Pto.Esperanca
Cuyaba
Goyaz
Matto Grosso
Plateau
Catalão
Uberaba
Pirapora
Carravellas
Diamantina
Bello Horizonte
Ouro Preto
Victoria
Campos
Petropolis
São Paulo
C.Frio
Rio de Janeiro
Santos
Baquedano
Antofagasta
Concepcion
PARAGUAY
Asuncion
Ponta Grossa
TRINIDAD
(Brazil)
S.FELIX
S.AMBROSO
(Chile)
AMERICA
Caldera
Tucuman
Corrientes
Encarnacion
Itajuby
São Francisco
Florianopolis
Laguna
La Serena
S.Borja
Cacequy
Porto Alegre
L.dos Patos
S.Cristobal
Cordoba
Santa Fé
Parana
Rivera
URUGUAY
Pt.da Barra
Rio Grande do Sul
L.Mirim
JUAN FERNANDEZ IS.
(Chile)
Valparaiso
Santiago
Mendoza
Rosario
Mercedes
Constitucion
Montevideo
Rio de la Plata
La Plata
Buenos Aires
Talcahuano
Concepcion
Telén
Toay
Neuquen
Bahia Blanca
Mar del Plata
C.Corrientes
Valdivia
Colorado
Negro
Pto.S.Antonio
Puerto Militar
B.Blanca
Choele Choel
Viedma
Puerto Montt
Ancud
Castro
Bariloche
I.DE CHILOÉ
G.de San Matias
Valdez Pen.
Golfo Corcovado
Pto.Madryn
Rawson
ARCHIPÉLAGO
DE LOS CHONOS
Camarones Bay
Pen.de Taitao
Rivadavia
G.de Peñas
G.of St.George
C.Blanco
I.CAMPAÑA
Puerto Deseado
WELLINGTON I.
MADRE DE DIOS
ARCHIPELAGO
Santa Cruz
Bahia Grande
REINA ADELAIDE
ARCHIPELAGO
FALKLAND IS.(Br.)
WEST
Stanley
EAST I.
Pto.Gallegos
Strait of Magellan
Strait of Magellan
I.DESOLATION
Punta Arenas
I.SANTA INES
TIERRA DEL FUEGO
STATEN I.
CLARENCE I.
Desolate Bay
NAVARINO I.
WOLLASTON
I.HOSTE
Cape Horn
SOUTH GEORGIA
FALKLAND DEPENDENCIES
Drake Strait
SANDWICH
GROUP
SAUNDERS I.
MONTAGUE I.
BRISTOL I.
SOUTH THULE
SOUTH
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SOUTH ORKNEY IS.
CORONATION I.
ELEPHANT I.
CLARENCE I.
LAURIE I.
Packice
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SMITH I.
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ARCHIPELAGO
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JOINVILLE I.
DUNDEE I.
Philippe Land
ROSS I.
Gerlache Str.
BISCOE IS.
King Oscar II Land
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Graham
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SEA
ALEXANDER I.
I. ISLAND
Packice
Charcot Land
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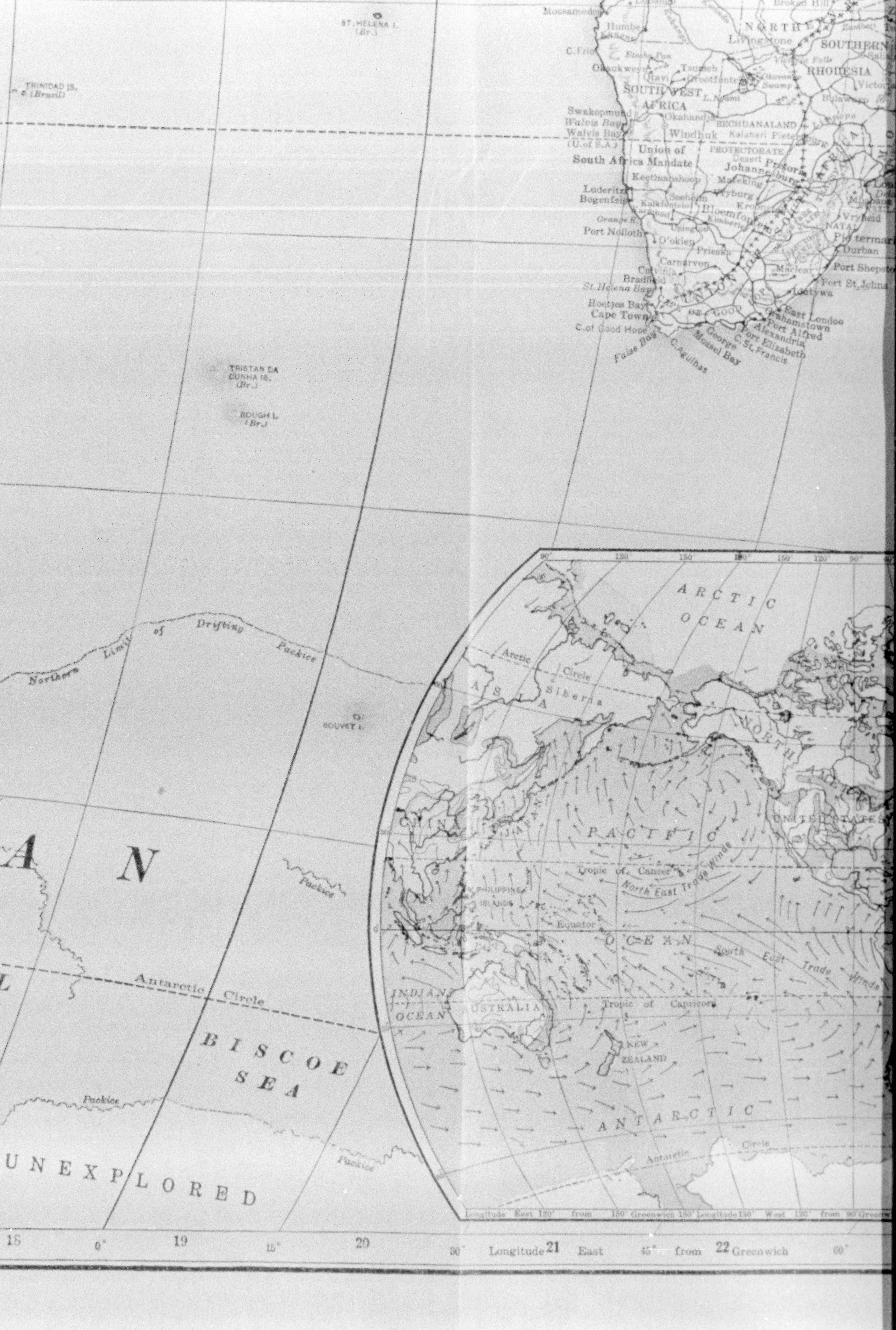
Coats Land
Longitude 13 West 75° from 14 Greenwich 60° 15 45° 16 30° 17 15° 18


ST. HELENA I. (Br.)
TRINIDAD IS. (Brazil)
Mossamedes
Humbe
C. Frio
Etosha Pan
Okaukwejo
Tsumeb
Grootfontein
Okovango Swamp
Livingstone
NORTHERN
SOUTHERN RHODESIA
Victoria Falls
Bulawayo
SOUTH WEST AFRICA
L. Ngami
Swakopmund
Walvis Bay
Walvis Bay (U. of S.A.)
Okahandja
Windhuk
BECHUANALAND PROTECTORATE
Kalahari Desert
Union of South Africa Mandate
Keetmanshoop
Pretoria
Johannesburg
Mafeking
Vryburg
Lüderitz
Bogenfels
Kalkfontein
Bloemfontein
Kimberley
Kroonstad
Orange R.
Upington
Port Nolloth
O'okiep
Prieska
NATAL
Vryheid
Pietermaritzburg
Durban
Carnarvon
Calvinia
Bradfield
St. Helena Bay
Maclear
Port Shepstone
Port St. Johns
Idutywa
Hoetjes Bay
Cape Town
East London
Grahamstown
Port Alfred
Alexandria
Port Elizabeth
C. St. Francis
George
Mossel Bay
C. of Good Hope
False Bay
C. Agulhas
TRISTAN DA CUNHA IS. (Br.)
GOUGH I. (Br.)
Northern Limit of Drifting Packice
BOUVET I.
A N
Packice
Antarctic Circle
BISCOE SEA
Packice
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90° 120° 150° 180° 150° 120° 90°
ARCTIC OCEAN
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ASIA
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UNITED STATES
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JAPAN
PACIFIC
Tropic of Cancer
North East Trade Winds
PHILIPPINE ISLANDS
Equator
OCEAN
South East Trade Winds
INDIAN OCEAN
AUSTRALIA
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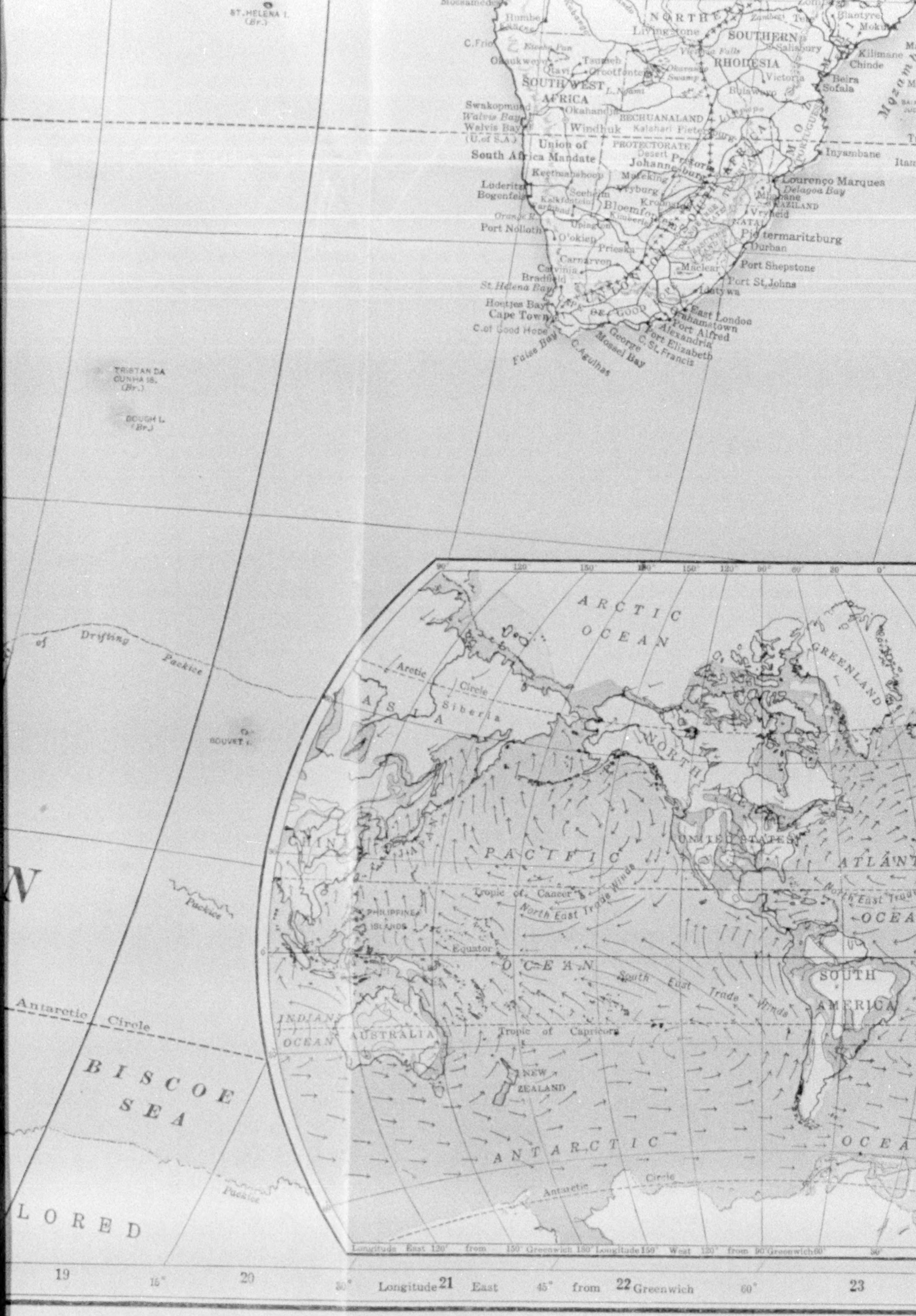
Antarctic Circle
Longitude East 120° from 150° Greenwich 180° Longitude 150° West 120° from 90° Greenwich


ST. HELENA I. (Br.)
Mossamedes
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Victoria
Bulawayo
Blantyre
Mokuba
Kilimane
Chinde
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SOUTH WEST AFRICA
L. Ngami
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Okahandja
Windhuk
BECHUANALAND PROTECTORATE
Kalahari Desert
Union of South Africa Mandate
Keetmanshoop
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Durban
Pietermaritzburg
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NATAL
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Mbabane
Lourenço Marques
Delagoa Bay
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UNION OF SOUTH AFRICA
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CAPE OF GOOD HOPE
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GOUGH I. (Br.)
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Packice
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Tropic of Cancer
North East Trade Winds
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PHILIPPINE ISLANDS
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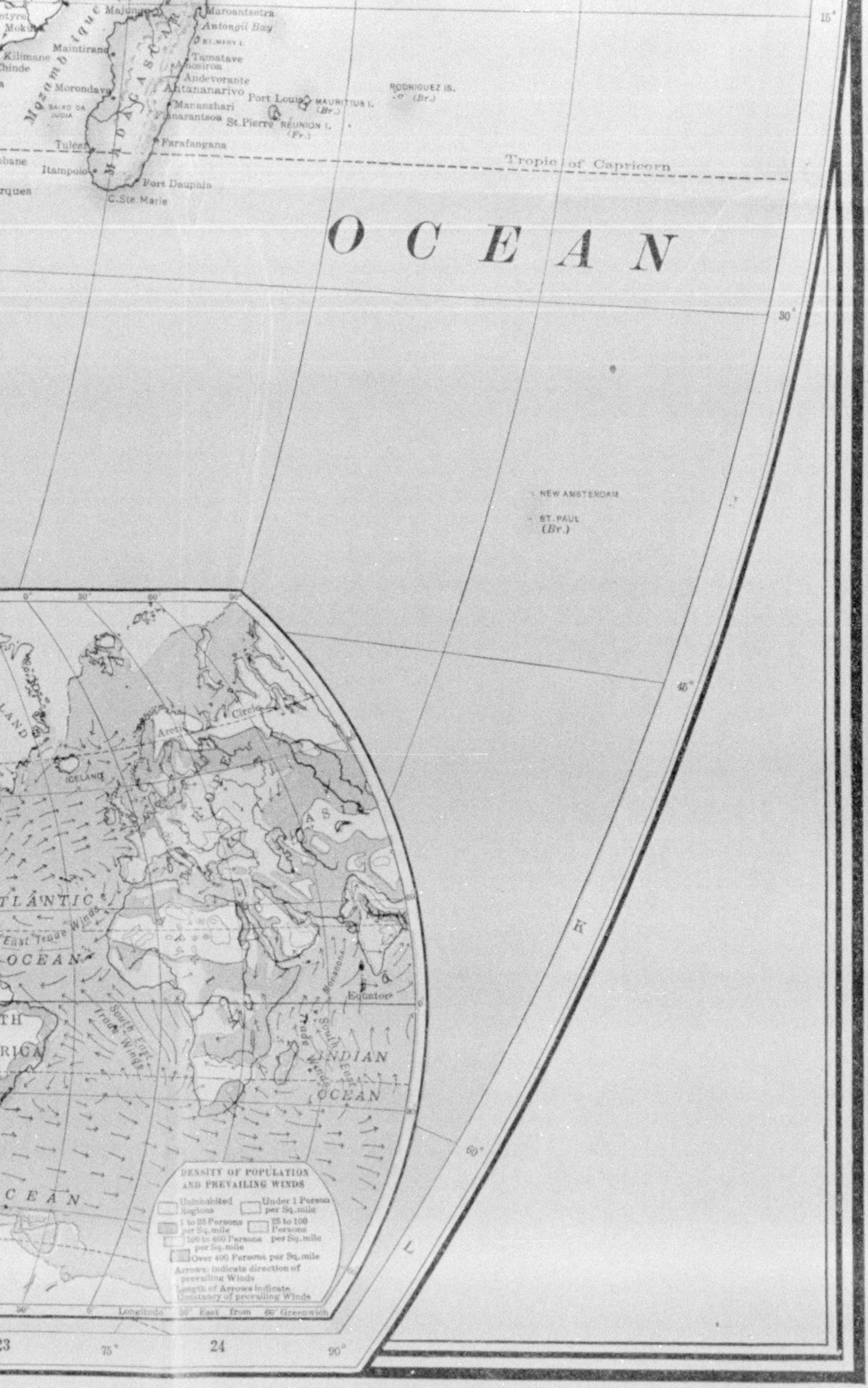
19 15° 20 30° Longitude 21 East 45° from 22 Greenwich 60° 23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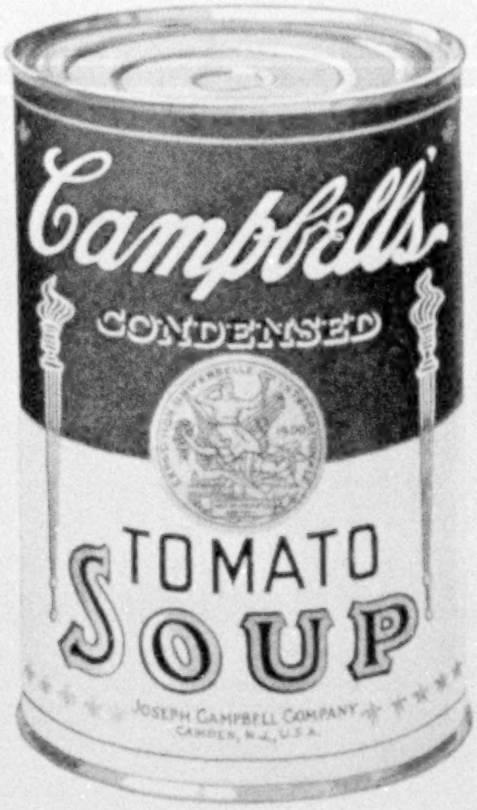
ST. MARY I.
Mokul
Maintirano
Kilimane
Chinde
Tamatave
Anosiroa
Andevorante
Antananarivo
Morondava
Mozambique
MADAGASCAR
BAIXO DA JUDIA
Mananzhari
Fianarantsoa
Port Louis
MAURITIUS I. (Br.)
RÉUNION I. (Fr.)
St. Pierre
RODRIGUEZ IS. (Br.)
Farafangana
Tulear
Itampolo
Fort Dauphin
C. Ste. Marie
Tropic of Capricorn
OCEAN
15°
30°
45°
60°
K
L
NEW AMSTERDAM
ST. PAUL (Br.)
ICELAND
Arctic Circle
EUROPE
ASIA
ATLANTIC
OCEAN
North East Trade Winds
Equator
South East Trade Winds
Monsoons
INDIAN OCEAN
OCEAN
DENSITY OF POPULATION AND PREVAILING WINDS
Uninhabited Regions
Under 1 Person per Sq. mile
1 to 25 Persons per Sq. mile
25 to 100 Persons per Sq. mile
100 to 400 Persons per Sq. mile
Over 400 Persons per Sq. mile
Arrows indicate direction of prevailing Winds
Length of Arrows indicate Constancy of prevailing Winds
Longitude 30° East from 60° Greenwich
0°
30°
60°
90°
23
75°
24
90°

XUM

SOUP MAKES THE WHOLE MEAL TASTE BETTER

The wish we wish is a great big dish
Of Campbell's and a spoon,
Then a mighty thump and a long long jump
And we'll sail right over the moon.



One jump ahead!

It's health that keeps you there. When Campbell's Tomato Soup sends up its fragrant invitation and your appetite revives and spoonful after spoonful freshens and delights you,—then pleasure and health go hand in hand. Soup strengthens appetite and digestion—increases nourishment.

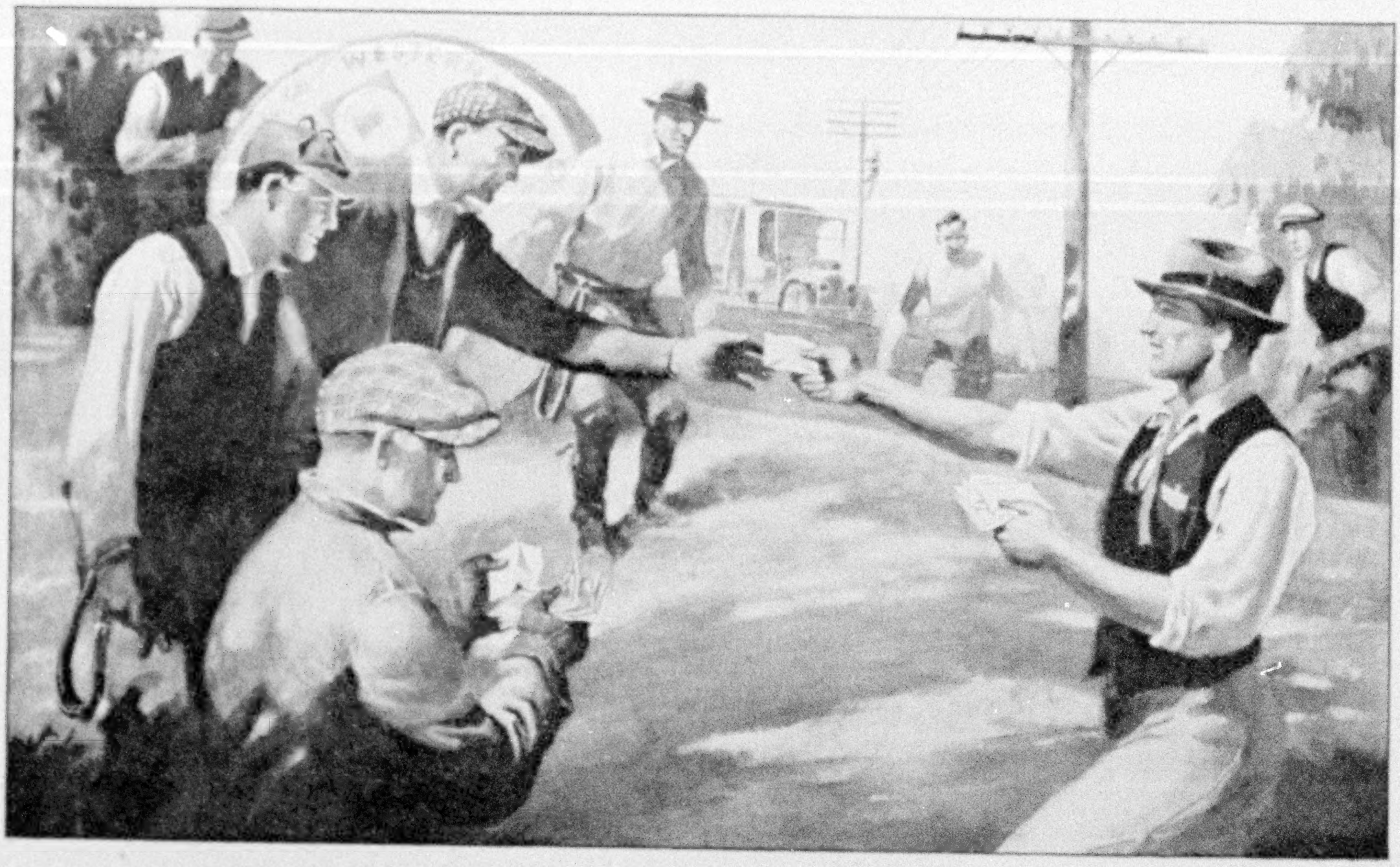
Campbell's Tomato Soup

is Nature's own tonic—the pure, stimulating juices and the rich "meat" of luscious Jersey tomatoes, strained free of skin, seeds and fibre to a velvet-smooth puree. There is the flavor and nutriment of fine butter, also, and the most delicate of spicing. The recipe is exclusively ours. But the sheer enjoyment is yours!

21 kinds 12 cents a can

Campbell's SOUPS

LOOK FOR THE RED AND WHITE LABEL



The Dollar

The daily actions of most of us are influenced by the messages received over the telephone, and yet few of us stop to think of the men and women, and the mechanisms, which help to make that daily service possible.

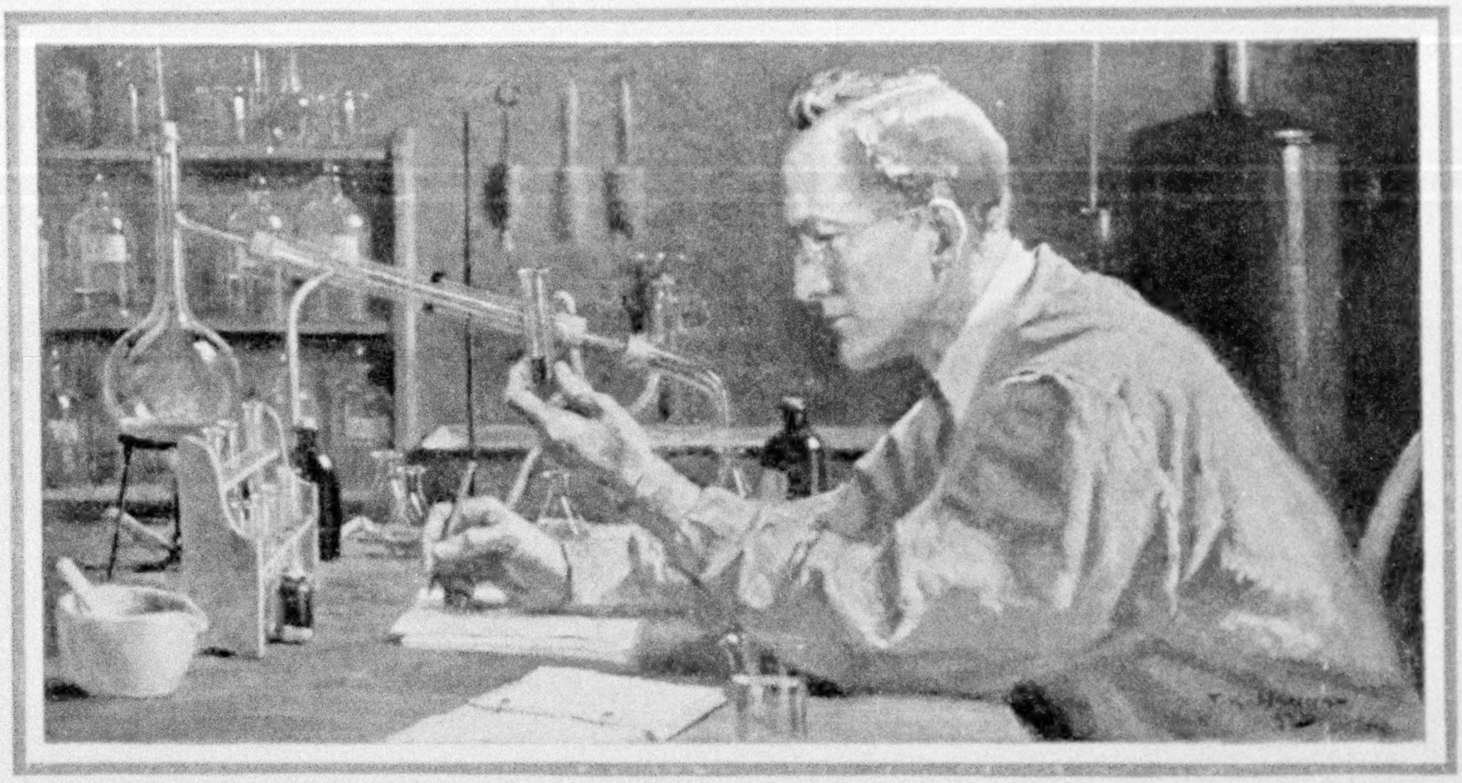
Maintenance, repairs, and the work of handling calls, must constantly be carried on in good times or in bad, and they must be paid for, in order that your telephone service may be continued.

The average dollar will buy to-day less than two-thirds of what it would buy before the war. This means that it costs, on the average, half as much again to buy most of the things that are necessary for keeping the country going; but the advance in telephone rates is far less than this average.

In fact, gauged by the present purchasing power of the dollar, telephone service in the country as a whole is costing the subscriber less than it did in 1914.

The Bell System generally has been able to meet higher commodity prices and increased wages by means of new economies in operation and the increased efficiency of loyal employees.

"BELL SYSTEM"
AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES
One Policy, One System, Universal Service, and all directed toward Better Service



Men seek the deciding "yes" or "no" of the analytical chemist because his conclusions are based on facts—facts which he is best equipped to gather—best qualified to weigh and judge.

"Yes" or "No" to a Bond?

When you come to The National City Company for bonds you come to an organization with resources enabling it to gather and weigh carefully the essential facts back of every bond it recommends.

At any one of our offices in more than 50 leading cities you will find a cordial welcome by men who are constantly studying investment problems—and who will gladly help you select high-grade bonds.

These experienced men are well qualified to analyze your present holdings, and may be able to suggest advantageous changes.

Regardless of the size of your investment account, we invite you to come and see us, or to write for our Current List of Bonds of liberal yield.

THE NATIONAL CITY COMPANY
NATIONAL CITY BANK BUILDING
NEW YORK

The National City Company
National City Bank Building, New York
Offices in more than 50 leading cities throughout the World

BONDS
SHORT TERM NOTES
ACCEPTANCES

GOODYEAR CORD
GOODYEAR ALL-WEATHER TREAD

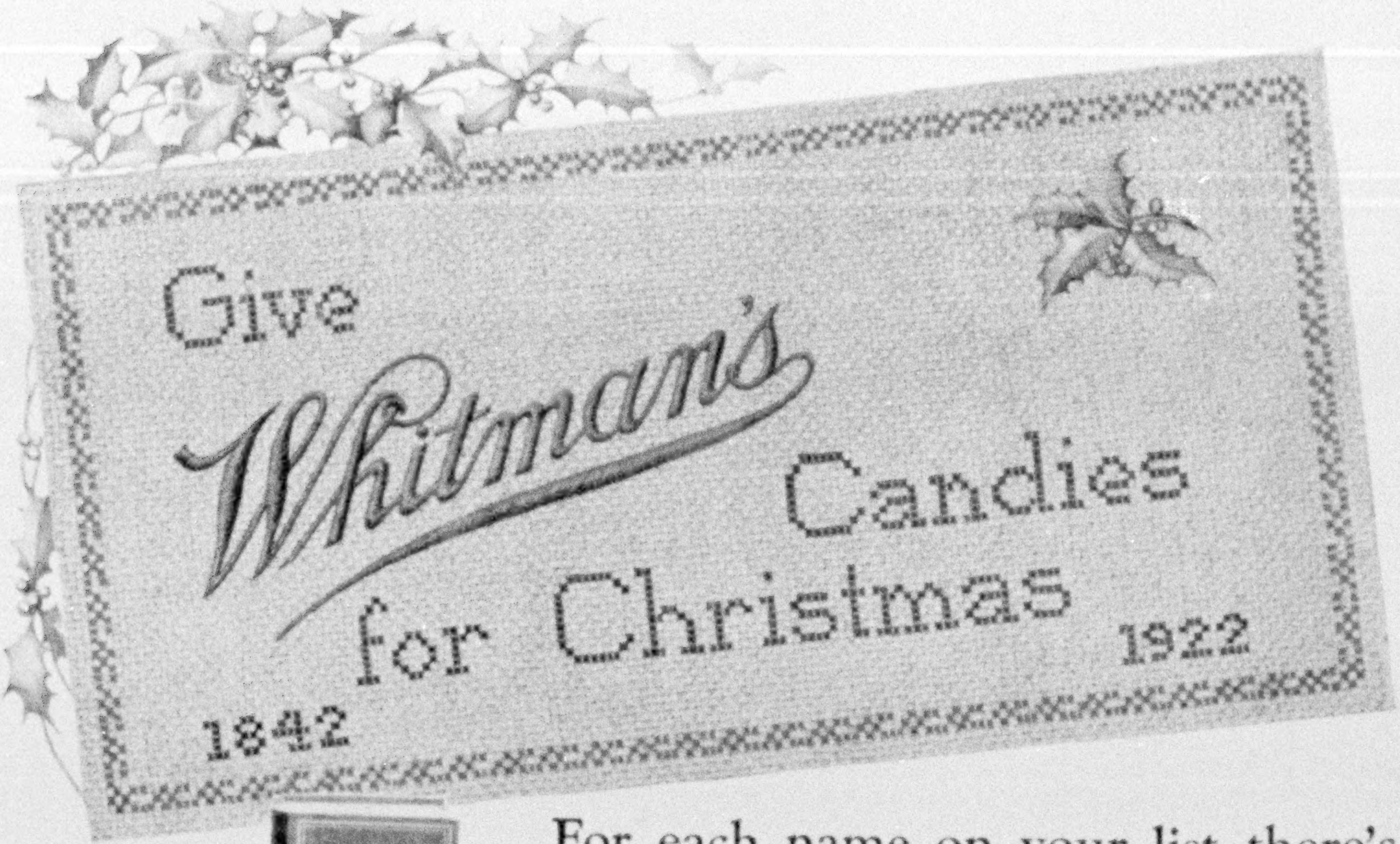
SOUND ASSURANCE OF VALUE

It has taken us nearly a quarter of a century to make Goodyear Tires as good as they are today. We have been assisted in our effort by experiment, experience and resources in great measure, and by the most modern scientific equipment available. These, with the incomparable record of Goodyear Tires, constitute your assurance of surpassing mileage—of performance that is nowhere excelled. Although Goodyear Tires now embody the highest quality in their history, their prices were never so low.

Goodyear Means Good Wear

GOODYEAR

Copyright 1922, by The Goodyear Tire & Rubber Co., Inc.



Whitman's
Whitman's Sampler
Chocolates & Confections

For each name on your list there's just the right package of *Whitman's*

THE SAMPLER: Judging from its enormous popularity, the Sampler is the most famous as well as the most beautiful gift package of sweets in America. Chocolates and confections culled from ten other leading packages of Whitman's—famous since 1842.

SALMAGUNDI CHOCOLATES: In their art box of exquisitely lacquered metal, these sweets have won a high place among critical candy lovers. "A medley of good things."

PLEASURE ISLAND CHOCOLATES: Here is a gaily colored sea-chest with scenes from Stevenson's "Treasure Island" to charm the eye. Inside are precious bags of "bullion" and "pieces" in gold and silver.

A FUSSY PACKAGE FOR FASTIDIOUS FOLKS: A luxury in chocolates. The box is in dark rich green proclaiming the distinction of its contents. Chocolates with nut, and nut combination centers.

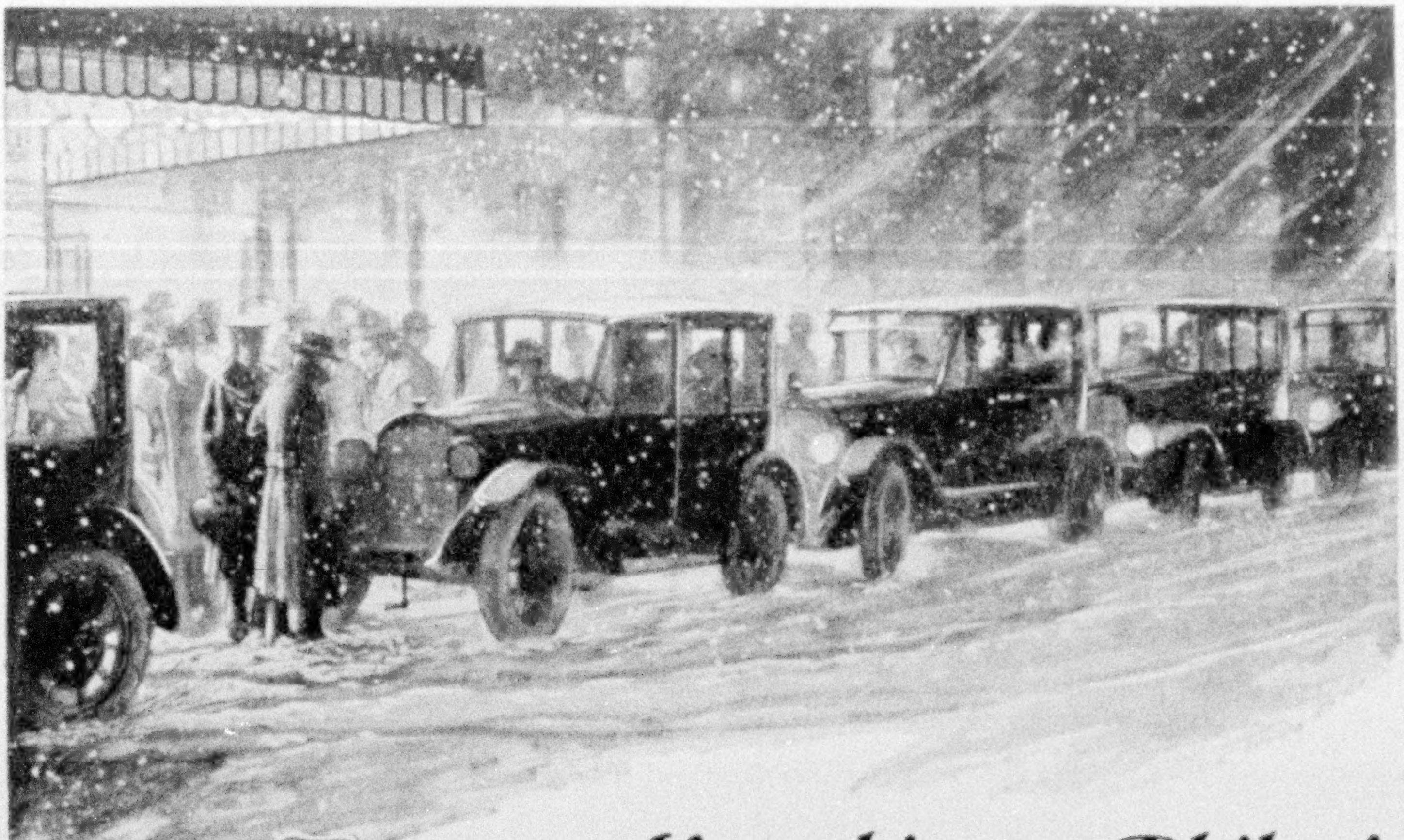
LIBRARY PACKAGE: "Exactly right" to give to those who enjoy their candy as they read. The package resembles a leather-bound book in hand-buffed green and gold.

SUPER EXTRA CHOCOLATES (or Confections) as far back as 1842 were the standard of Whitman excellence. You'll want to write "Super Extra" opposite several names on your list.

Hand painted round boxes and fancy bags, boxes and cases in great variety. See them at the Whitman Agency which serves you.

STEPHEN F. WHITMAN & SON, Inc., Philadelphia, U. S. A.

Also makers of Whitman's Instantaneous Chocolate, Cocoa and Marshmallow Whip



After this—a Philco!

Winter's no time for weak, crippled or under-powered batteries! That's one reason why thousands of car owners today are replacing their ordinary batteries with *super*-powered, man-size, long-life Philcos.

They want no more back-breaking hand-cranking of cold-stiffened motors. No more humiliating experiences in traffic. No more battery failures miles from a service station.

The life, power and all-year-round dependability of the Philco Battery are *guaranteed for two years*—the longest and strongest guarantee ever placed on a nationally-known automobile battery.

"How can you do it?", ask thousands of car owners. Philco Service Stations reply by showing them why the famous time-tested features of the Philco Battery—Diamond-Grid Plates, Slotted-Rubber Retainers and Quarter-Sawed Hardwood Separators—*make it long outlast its two-year guarantee.*

Why not *forestall* battery trouble—and needless battery expense—by installing a Philco NOW? For years the lowest cost per-month-of-service battery—*it now costs you no more to buy* than just an ordinary battery.

There's a right size Philco Battery for your particular car. Let your nearest Philco Service Station show it to you.

Philadelphia Storage Battery Co., Philadelphia

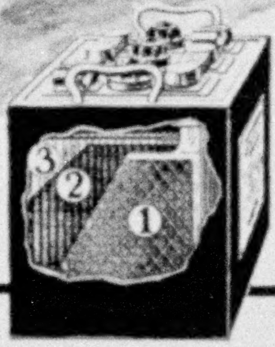
The famous Philco Slotted-Retainer Battery is the standard for electric passenger cars and trucks, mine locomotives and other high-powered, heavy-duty battery services.

PHILCO

SLOTTED RETAINER

BATTERIES

with the famous shock-resisting Diamond-Grid Plates



3-Point Superiority

1. **The Famous Diamond-Grid**—the diagonally braced frame of a Philco plate. Built like a bridge. Can't buckle—can't warp—can't short-circuit. Double latticed to lock active material (power-producing chemical) on the plates. Longer life. Higher efficiency.

2. **The Philco Slotted Rubber Retainer**—a slotted sheet of hard rubber. Retains the solids on the plates but gives free passage to the current and electrolyte. Prevents plate disintegration. Prolongs battery life 41 per cent.

3. **The Quarter-Sawed Hard-Wood Separator**—made only from giant trees 1,000 years old; quarter-sawed to produce alternating hard and soft grains. Hard grains for perfect insulation of plates. Soft grains for perfect circulation of acid and current—quick delivery of power. Another big reason why Philco is *the* battery for your car.

LOOK FOR THIS SIGN

of Philco Service. Over 5,000 stations—all over the United States. There is one near you. Write for address, if necessary.

PHILADELPHIA
DIAMOND
GRID
BATTERY
With the PHILCO Slotted Retainer

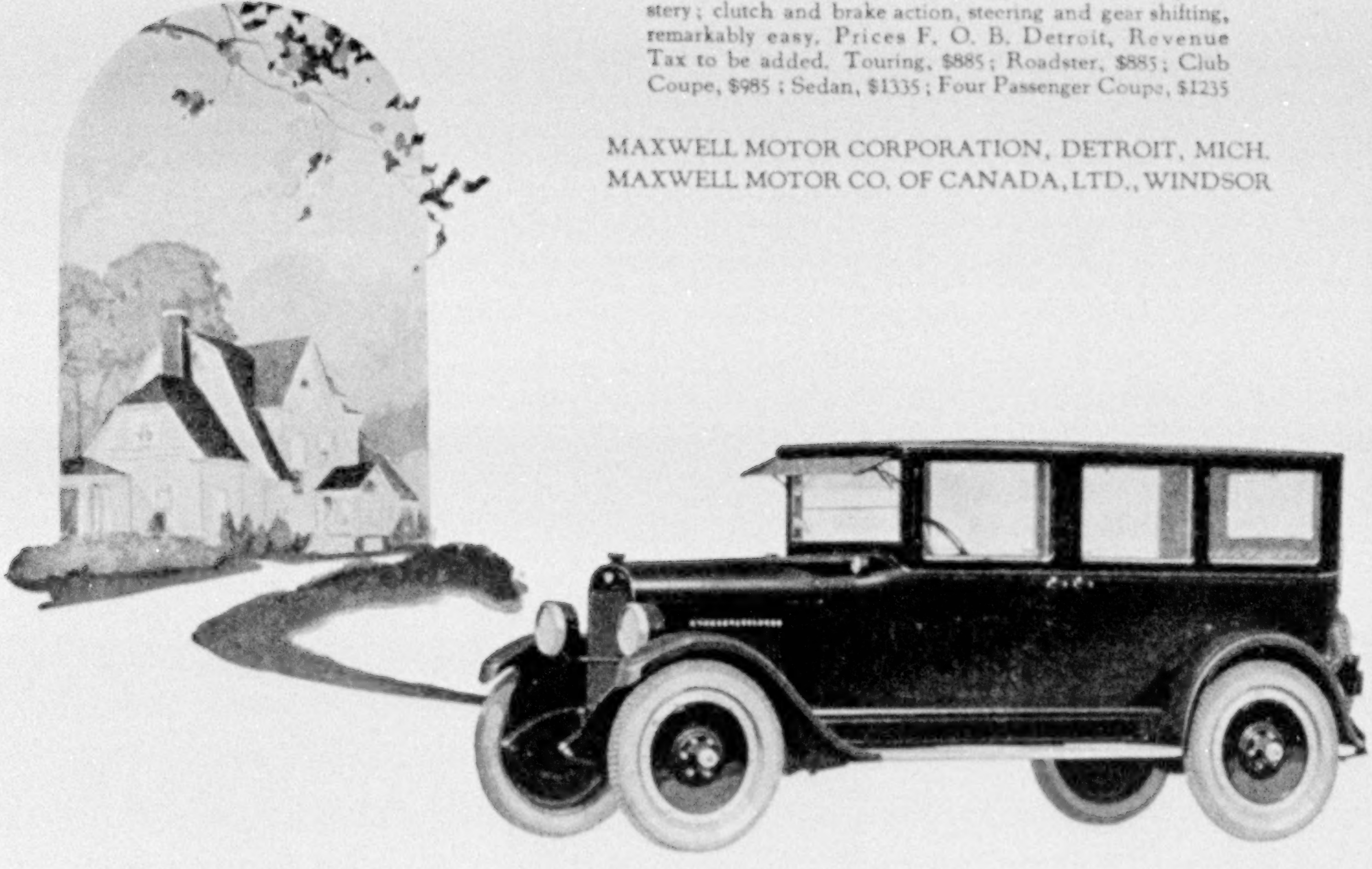
XUM

Those who drive it already know, and the general public is gradually learning, that the quality of materials in the good Maxwell, and the manufacturing processes employed, are far above those used even in the best of cars appealing to the same public.

A quick way to prove this is to compare the things which meet the eye—exterior finish, accessories and appointments—with the same items in cars which cost a great deal more.

Cord tires, non-skid front and rear; disc steel wheels demountable at rim and at hub; drum type head and parking lamps; windshield cleaner; rear-view mirror; Alemite lubrication; unusually long springs; broadcloth upholstery; clutch and brake action, steering and gear shifting, remarkably easy. Prices F. O. B. Detroit, Revenue Tax to be added. Touring, $885; Roadster, $885; Club Coupe, $985; Sedan, $1335; Four Passenger Coupe, $1235

MAXWELL MOTOR CORPORATION, DETROIT, MICH.
MAXWELL MOTOR CO. OF CANADA, LTD., WINDSOR



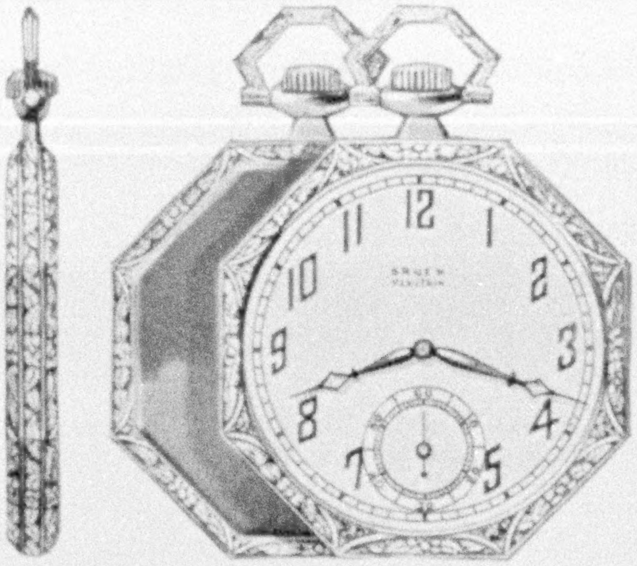
The Good

MAXWELL

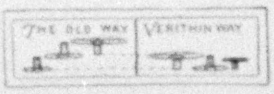
XUM

Among those watches recognized as the world's finest pocket timepieces there is none more distinctive, more dependable, than the Gruen Verithin. The Octagon model pictured here, with its Precision movement, is guaranteed to come within railroad time requirements. It is a Gruen Guild creation, a product of the same spirit of fine craftsmanship that inspired the master watchmakers of the ancient guilds.

No. A-121 14 kt. solid green gold, Precision movement: $145 to $200; 18 kt. solid white gold, Precision movement, $175 to $250. At the leading jewelers.



How the Gruen Pat. Wheel Construction made an accurate watch logically thin.



Exclusive makers of the original genuine Verithin.

GRUEN Guild Watches

Including the original and genuine "VERITHIN" model

GRUEN

Time Hill, Cincinnati

Canadian Branch, Toronto

Make Your Little Girl Happy with an

Add-a-pearl

REG. U.S. PAT. OFF.

NECKLACE

The family and friends will keep it growing

ASK YOUR JEWELER

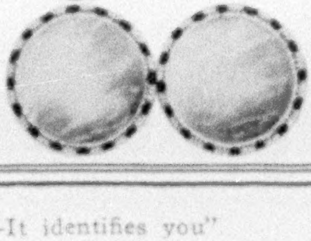
Krementz

The Krementz collar button was the inspiration of a man whose establishment already had set the standard among jewelry craftsmen for fine workmanship and skillful designs.

So proud was he of his collar button that he stamped his name, "Krementz," on the back, an identification that is as much of a protection to buyers today as it was 50 years ago.

Collar buttons 25c—$1.50;
Links $2—$7.00; evening
jewelry $4.50—$17.50
Only at better shops.

KREMENTZ & CO. Newark, N. J.



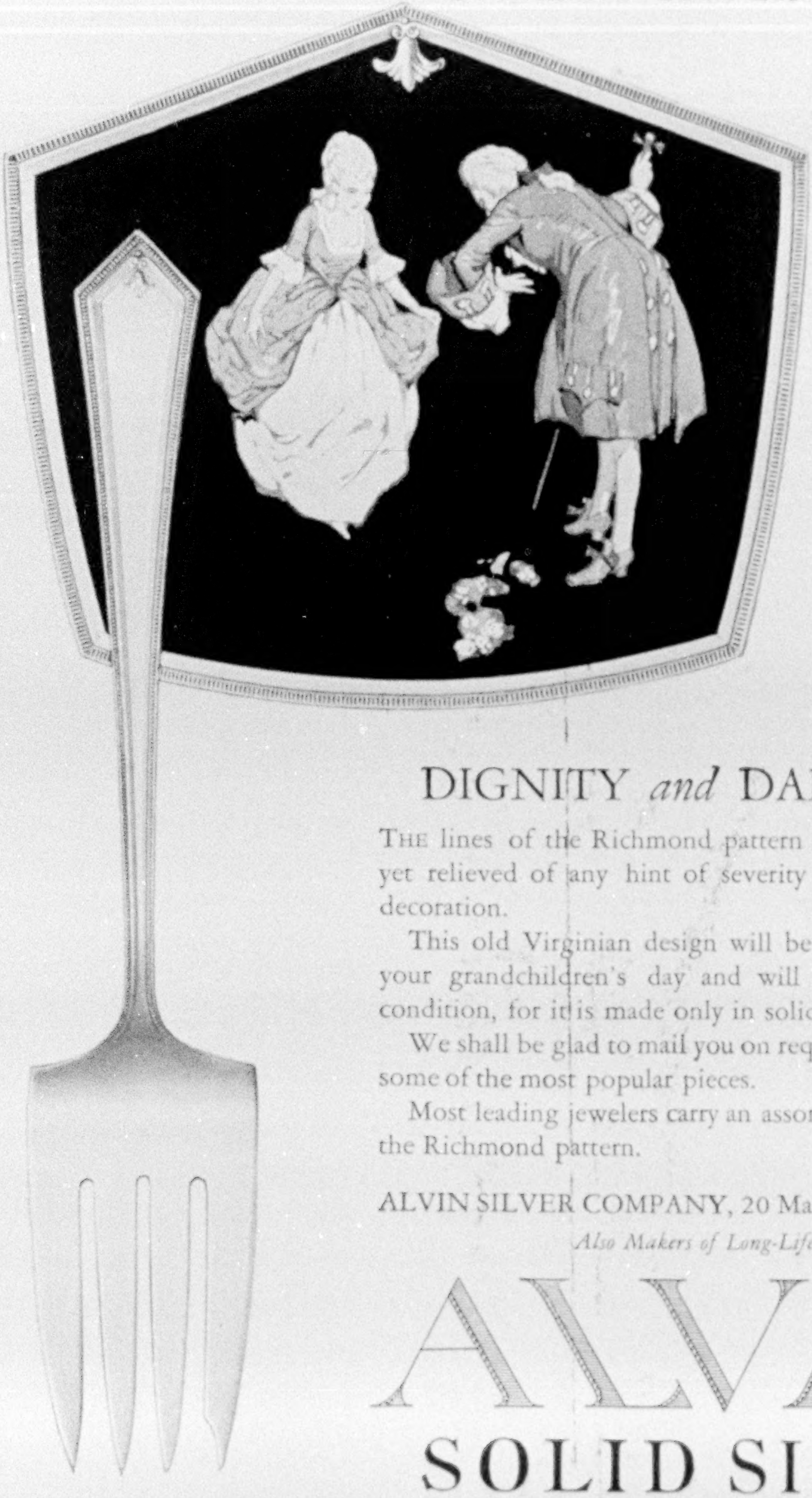
FULL DRESS SETS

805K—4 Vest Buttons	$3.00
806K—Three Studs	$1.50
804K—Pair Links	$3.00

Mother of pearl with platinum plate and black enamel rims.

The Richmond Pattern

STERLING SILVER



The Richmond pattern is made in a complete assortment of knives, forks and spoons, with plates, dishes, and tea service to match.

DIGNITY *and* DAINTINESS

THE lines of the Richmond pattern are classically simple, yet relieved of any hint of severity by the grace of the decoration.

This old Virginian design will be equally appealing in your grandchildren's day and will be in equally good condition, for it is made only in solid silver.

We shall be glad to mail you on request a leaflet picturing some of the most popular pieces.

Most leading jewelers carry an assortment of silverware in the Richmond pattern.

ALVIN SILVER COMPANY, 20 Maiden Lane, New York

Also Makers of Long-Life Plate

ALVIN

SOLID SILVER

(STERLING)

CUNARD
and ANCHOR
Steam Ship Lines

The whole history of transatlantic travel is typified in the growth and development of the Cunard Company—the famous passenger steamship line which represents the latest ideas in construction and equipment and the highest refinement in the service afforded their passengers.

To the
MEDITERRANEAN

An attractive opportunity is offered during the coming season in the following sailings:

TUSCANIA, December 6th
CARONIA, February 10th

To Madeira, Gibraltar, Algiers, Monaco (Riviera), Genoa, Naples (Rome), Piraeus (Athens), Constantinople, Alexandria (Cairo)—according to itinerary and steamer selected.

Option of stop-overs and return trips via North Atlantic.

Apply
25 BROADWAY, NEW YORK
or Branches and Agencies

Often Better Than Medicine

THAT the shower has valuable therapeutic properties as well as being the ideal way of bathing—in running water—is freely admitted among physicians.

Stand under the shower—turn it on full. In two minutes the skin is waked up, muscles have been gently massaged by scores of scintillating, cleansing sprays.

And at bed time, a gentle, soft-falling, warm shower induces almost immediate and restful sleep.

Of course to be adaptable to individual conditions the shower should be easily adjustable—both force and temperature. The SPEAKMAN Mixometer gives the bather control of the shower's temperature, while with the Anyforce Head, an exclusive SPEAKMAN advantage, the water's volume or force can be regulated instantly. This is very important when you consider that the shower's benefits are for men and women, and old as well as young. Also that water pressures vary in different parts of a city and even on the several floors of a building.

There are SPEAKMAN Showers—both Mixometer and two-valve types—for residences, hotels, clubs and institutions. Your plumber and architect know them—their quality. And let your plumber give you a SPEAKMAN Shower folder—or write us.

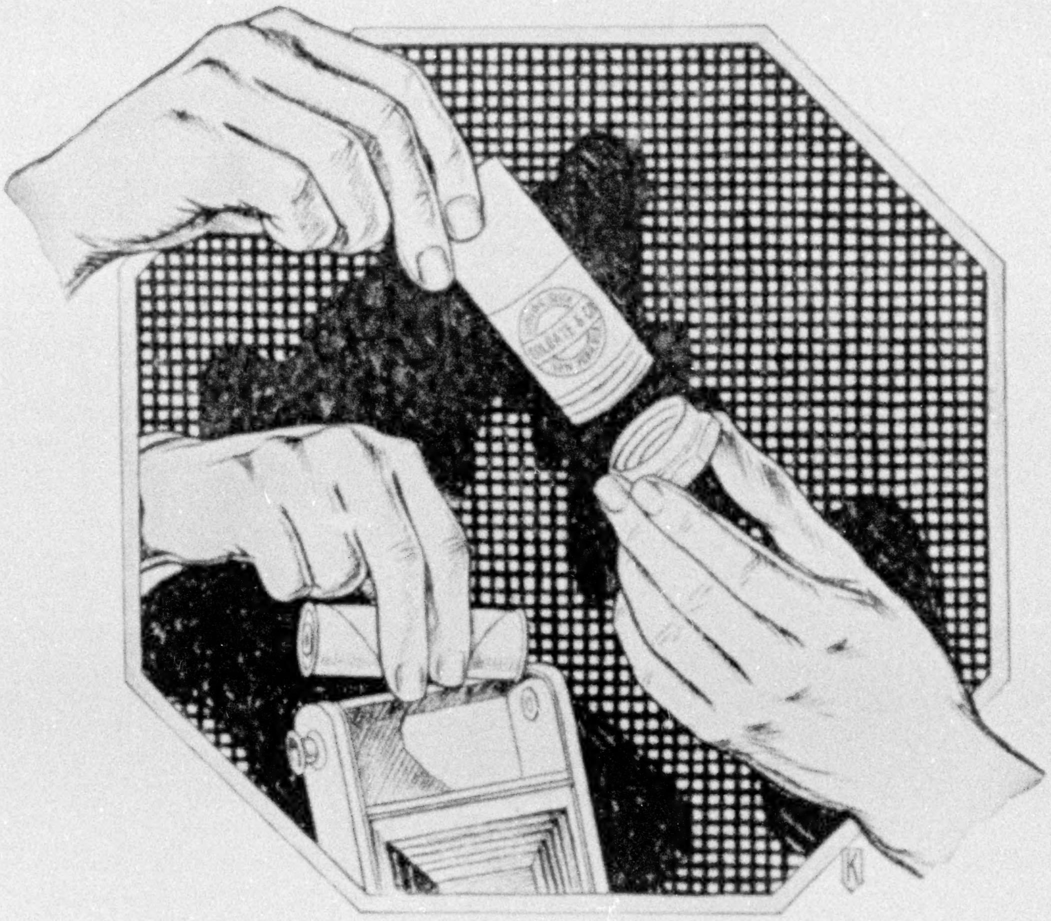
SPEAKMAN COMPANY
WILMINGTON, DELAWARE

SPEAKMAN
SHOWERS

COLGATE'S

"HANDY GRIP" REG. U.S. PAT. OFF.

The Refill Shaving Stick



Like Putting a New Film in a Camera

PUTTING a Colgate "Refill" Shaving Stick into the "Handy Grip" is like putting a new film in a camera, but easier, and done in an instant.

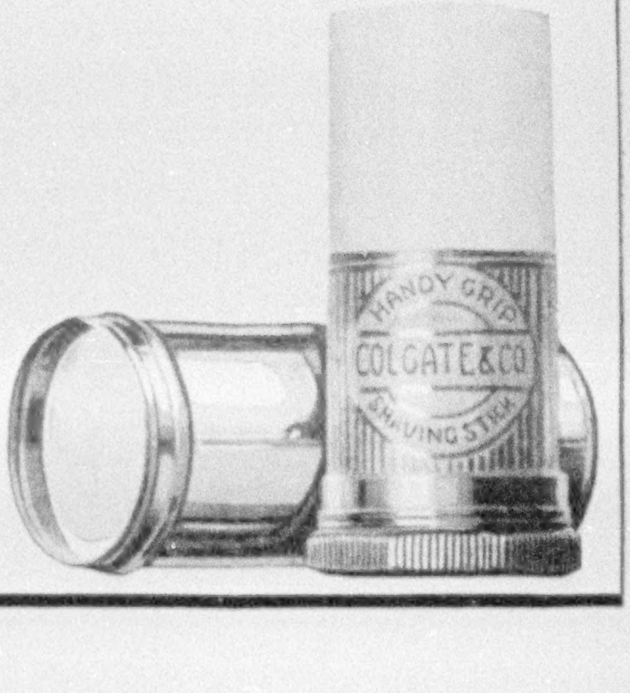
The "Handy Grip" and metal container last for years. When you need "Refills," buy them for the price of the soap alone. In hot water or cold, in hard water or soft, Colgate's lathers quickly, and needs no mussy rubbing in with the fingers. It leaves the face cool and refreshed.

The stick is the most economical form of shaving soap. We can give you this assurance impartially, since we make shaving powder and cream, as well as shaving sticks. But if you *prefer* cream, you will acknowledge when you have shaved with Colgate's Rapid-Shave Cream that you never knew before how good a shaving cream could be. It is one of our latest products, made on a new principle, and brought to perfection after years of scientific effort.

COLGATE & CO. *Dept. 66* 199 Fulton St., New York

This Christmas put a cheery, red tube of Colgate's Ribbon Dental Cream in every Christmas stocking.

The metal "Handy Grip," containing a trial size stick of Colgate's Shaving Soap sent for 10c. When the trial stick is used up you can buy the Colgate "Refills," for the price of the soap alone. There are 350 shaves in a Colgate Shaving Stick—double the number you can get from a tube of cream at the same price.



WINTER VACATION VOYAGES

MEDITERRANEAN

ADRIATIC (*24,541 tons*)
Jan. 6, Feb. 24, 1923
LAPLAND (*18,565 tons*)
Jan. 18, Mar. 10, 1923

World-famous for steadiness, de luxe quarters, cuisine and service. For travelers of discrimination. Ample time for delightful visits ashore.

Round trip cruise bookings.
To Naples via Egypt and the Holy Land.
One way bookings to Egypt.

Itinerary: Madeira, Gibraltar, Algiers, Monaco (the Riviera), Naples, Alexandria (for Egypt and the Nile), Haifa for Jerusalem, and Athens (Phaleron Bay).

WEST INDIES

MEGANTIC (*20,000 tons displacement*)
Jan. 15. Feb. 17, Mar. 22, 1923

Magnificent cruising ship of admirable construction for tropic voyages. Premier steamer to the West Indies.

Rates $250 Upwards

Itinerary arranged by Cruise Department of more than 25 years' experience in the West Indies. From New York to Havana, Haiti, Santiago, Kingston (Port Antonio), Panama Canal (Panama City), La Guaira (Caracas), Trinidad (La Brea), Barbados, Martinique (St. Pierre), St. Thomas, San Juan, Nassau, Bermuda.

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To the Secretary, National Geographic Society,
Sixteenth and M Streets Northwest, Washington, D. C.:

I nominate ....

Occupation ....
(This information is important for the records.)

Address ....

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for membership in the Society.

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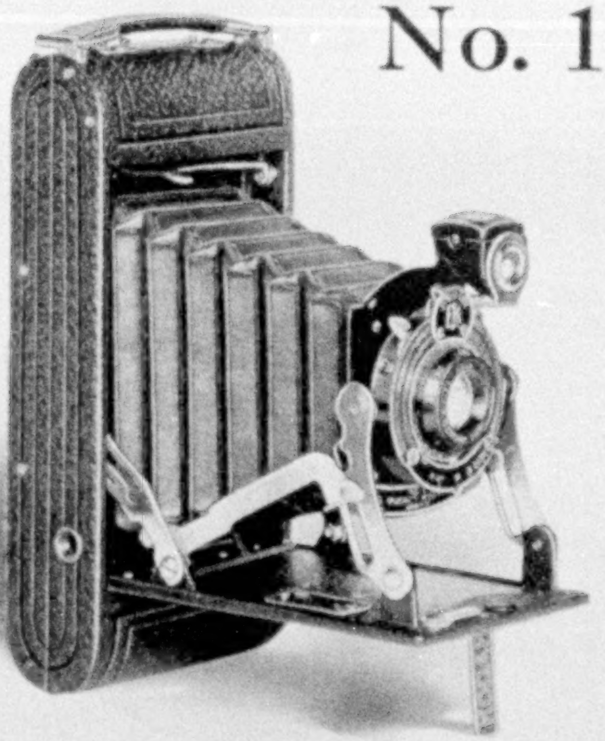
Name and Address of Nominating Member

12-22

A new model Kodak—and just in time for Christmas



No. 1 Pocket Kodak

Series II

with Kodak Anastigmat Lens *f*.7.7

[FOCUSING MODEL]

Price $20

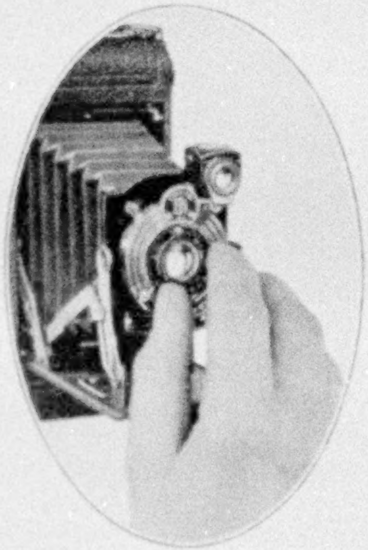
Pictures 2¼ x 3¼

WHILE the famous, sharp-cutting Kodak Anastigmat lens *f*.7.7, with shutter speed controls of 1/25, 1/50 and 1/100 of a second as well as time and bulb action, immediately gives this camera photographic prestige, the No. 1 Pocket Kodak, Series II, has other distinctive features.

The self-erecting front makes it a quick-action Kodak—the lens automatically snaps in position as the front is dropped.

The focusing device puts the correct focus at your finger tips. Instead of the familiar scale on the camera bed, the focus is secured by a slight turn of the lens flange and exact focus is thus established from 5 feet to 100.

Autographic, of course, with the new design, counter-sunk slot; well made and handsomely finished.

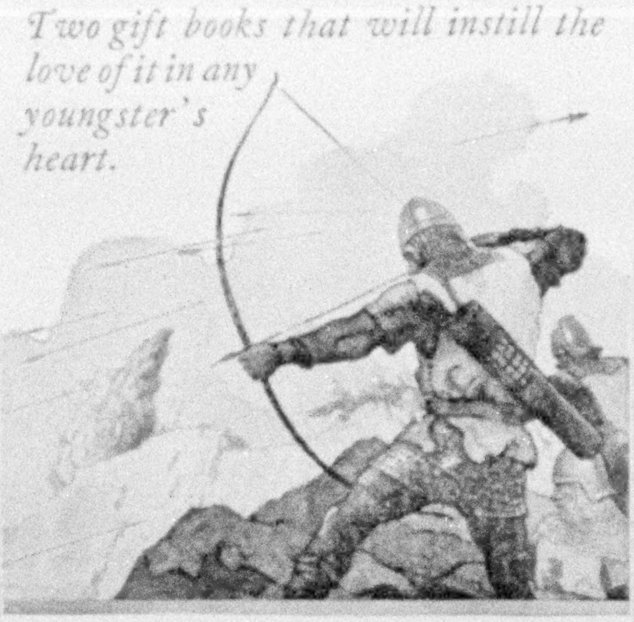


Everybody likes pictures—and here's an ideal camera

Eastman Kodak Company, Rochester, N. Y., *The Kodak City*

Out-Door Adventure!

Two gift books that will instill the love of it in any youngster's heart.



The White Company

Illustrated in Brilliant Colors by America's greatest painter of Costumed Romance

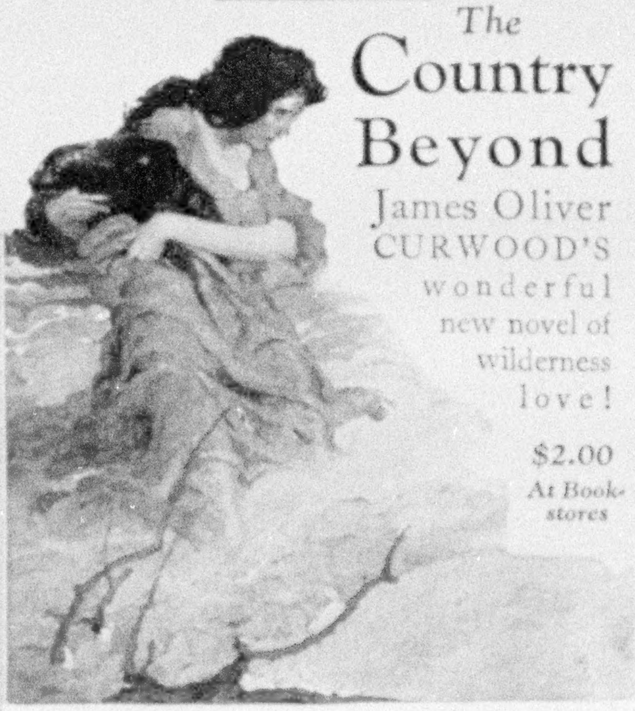
Conan Doyle's famous historical novel in a splendid new edition! In large size, with cover and 14 full page paintings by N. C. Wyeth.

The Gift Supreme! At Bookstores, $3.50

The Country Beyond

James Oliver CURWOOD'S wonderful new novel of wilderness love!

$2.00 At Bookstores



They make ideal Christmas gifts for those who love fiction or adventure!

Cosmopolitan Book Corporation

119 West Fortieth Street, New York

Do you like fine things?

In the matter of fine bond paper

If you want to sell something to a business man, there is a theory that you should talk business. That is, talk in terms of dollars and discounts, profits and turnover, sales and distribution figures.

Not always—we think.

In the matter of fine bond paper, for instance. It is all right to talk about the impression a good-looking letter makes, but the worth of that impression cannot possibly be translated into terms of dollars and cents.

We don't believe the people who use Old Hampshire Bond buy it for that reason. Surely, a paper as beautiful and fine as this is not bought solely to impress somebody.

Men who carry fine watches or who drive fine cars don't all do so with the idea of knocking out the eyes of strangers and friends. Fine things are bought because they *are* fine.

A paper like Old Hampshire Bond is used mainly because it is appreciated. Business men buy it not for mercenary reasons, but for esthetic reasons—for the same reason they wear clean collars.

Men who carry fine watches

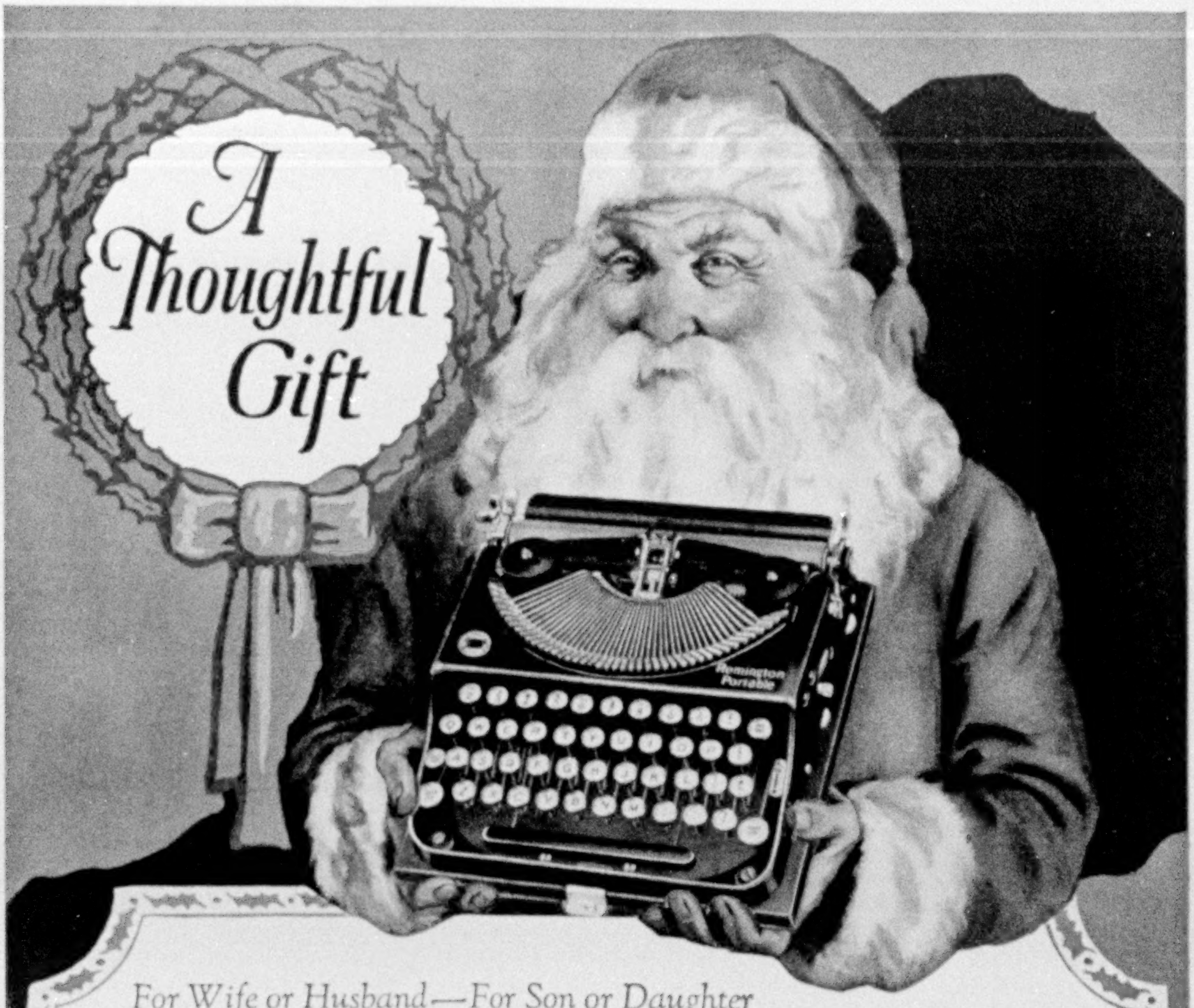
If *you* like fine things, we shall be glad to send you some Old Hampshire Bond to try—a fine paper for people who like things made just a little better than seems necessary. Ask for it on your business letterhead.

Old Hampshire Bond

Hampshire Paper Company

Made a little better than seems necessary — Old Hampshire Bond

South Hadley Falls, Mass.



For Wife or Husband—For Son or Daughter
For Teacher or Pastor—For Dearest Friend

Remington Portable

A complete portable typewriter that will be prized by anyone—because it is helpful, useful, practical and valuable.

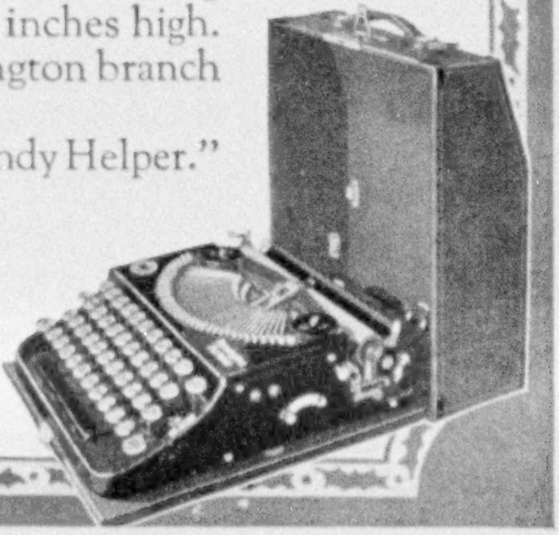
Has the complete standard keyboard and other big machine features. Fits in case only four inches high.

Sold by over 2,000 dealers and Remington branch offices everywhere.

Send for our illustrated "Your Ever Handy Helper." Address Department 65.

REMINGTON TYPEWRITER CO.
374 Broadway, New York

Paragon Ribbons for Remington Portable Typewriters. Made by us. 50 cents each, $5 a dozen



"That Old Sweetheart of Mine"

"I can see the pink sunbonnet and the little checkered dress
She wore when I first kissed her and she answered the caress
With the written declaration that, 'as surely as the vine
Grew round the stump,' she loved me—that old sweetheart of mine."

IT'S James Whitcomb Riley, of course. No other American poet ever touched simple human experience with the same wonderful sympathy and charm. He wrote a verse for every mood; he stirs every kindly emotion with his deeply sincere humor and pathos.

A little book containing five of Riley's most popular poems, one of his best humorous stories, and a brief sketch of his life and works has been published. It is offered without obligation to adult lovers of good literature to promote a wider knowledge of the

Memorial Edition of
James Whitcomb Riley

More than 1,000 masterpieces at a few cents each

For years there has been an insistent demand for *all* of Riley in one fine, popular-priced set. That demand can now be satisfied.

All his poems, all his short stories—the masterpieces that have caused the schools of his native State to have a Riley Day once a year—these are in these ten beautifully bound and illustrated volumes.

Every cultured home should at least know something about Riley and his work. Without obligating yourself, send for

"Poems and Stories Every Home Should Know"

Five Riley poems that will live forever; poems and stories that every American should know are printed in this little book; with beautiful illustrations by Howard Chandler Christy; an appreciation of Riley's humor by Mark Twain; and the high lights of Riley's life.

No obligation, but you must act now—today.

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POEMS and STORIES EVERY HOME SHOULD KNOW
FROM THE WORKS OF

P. F.
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416 West
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Please send me the free booklet about Riley, together with full particulars as to how I may procure a complete set of his works by small monthly payments.

Name.........................

Address.........................

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606-RA L

Occupation.........................

The publishers cannot undertake to send this book free to children

"Wonderful!!"

That's what is said after sick, aching, burning feet have been fitted to the

New

A.E. LITTLE SHOE

Conditioning ***Suspension***
Arch Supporting

Very often the pain does not stop with the feet alone, but is also felt in the legs and back. The A. E. Little Shoe is the result of 25 years' concentrated effort on one subject—the first important improvement in shoemaking for 35 years. Ask those who wear them and hear them say, "Wonderful!" *That's all.*

Ask your doctor. Ask your shoe dealer. Send to the factory for further information.

A. E. LITTLE COMPANY
The Makers of **SOROSIS**
The Shoe with Millions of Friends
WOMEN'S FACTORY: LYNN, MASS.
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THE noblest traits of character can be symbolized and perpetuated in a Harrison Memorial of Barre granite. Our years of experience are at your service for a monument of any kind.

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Established 1845

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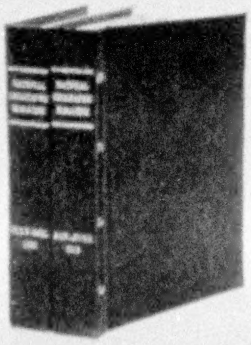

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Title and dates stamped in gold to order. Holds 6 issues, making **two volumes to each year.** Full instructions.

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Binders to order for all magazines.

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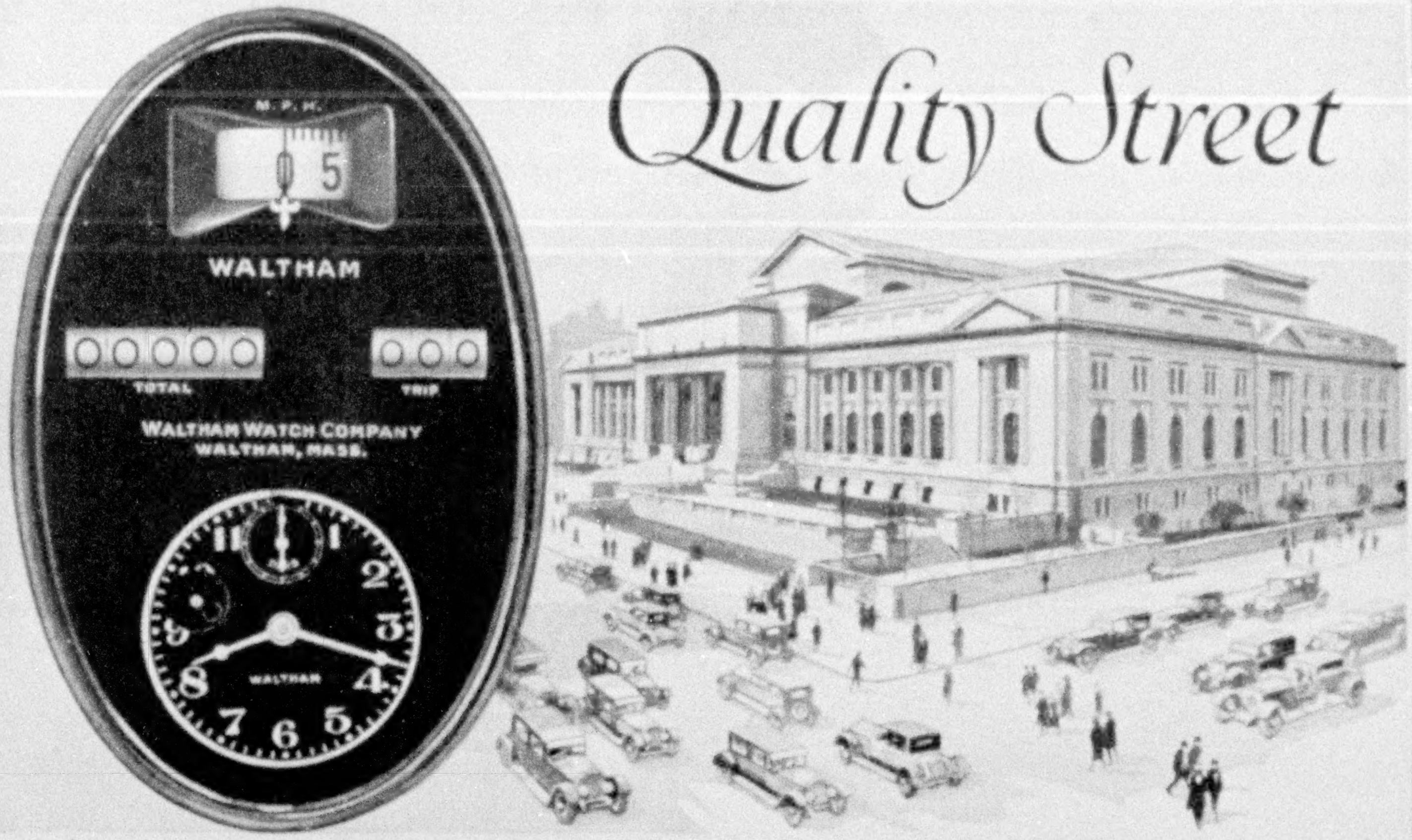

Model 1102

Speedometers - Clocks - Watches

The value you do not see

Speedometers may look alike to you, but there is only one air-friction speedometer in all the world.

An automobile clock may be just a clock, but Waltham auto clocks are super-time keepers when you think for a moment what a daily pounding of vibration they get. You may imagine one watch is as good as another, but Waltham Watches have invariably defeated the world's best, when it came to scientific investigation and rigid test.

A great family of watchmakers, master mechanics, inventors cannot make precision instruments for seventy years without putting values into mechanism and design that give a value beyond the purchase price—the value you do not see. That is why the world's leading motor cars are Waltham equipped. And why the careful buyer, who *invests* money in a fine watch, demands a Waltham.

The Waltham Speedometer is the only air-friction Speedometer in the world. (Invented by Nikola Tesla.) Developed and perfected by Waltham.

Ribbon loops patented

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Ribbon Wrist Watch $95.00 and up

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THE SCIENTIFICALLY BUILT WATCH

comfort while you shave

Most lathers are made only to soften beards. But that is not enough.

When shaving hurts it's your *skin* that hurts, not the hair. *And until you prepare your skin as well as your beard for the shave, you're missing shaving comfort.* One shave with Williams' shows you how tremendously important that is.

Williams' Luxury Shaving Cream tones up your skin. Primes it. Limbers it up and makes it supple. As a result, the razor glides over your skin—smoothly, quickly. Instead of irritation—lather-luxury. Instead of razor-chafing—comfort. Instead of after-smart—after-comfort.

Hundreds of thousands of men have already discovered the new comfort of Williams' lather-luxury. You can discover it without cost. Fill out and mail the coupon below.

Williams'

Shaving Cream

GET-ACQUAINTED TUBE FREE

The J. B. Williams Co., Glastonbury, Conn.
Department 112

I want to see for myself what you mean by a new luxury in shaving cream. Send me your free Get-Acquainted tube.

Name ....

Address ....

The Perfect Bathroom

FAIRFACTS China Accessories mark the last word in bathroom equipment. Plan to have them installed when you build or remodel your house.

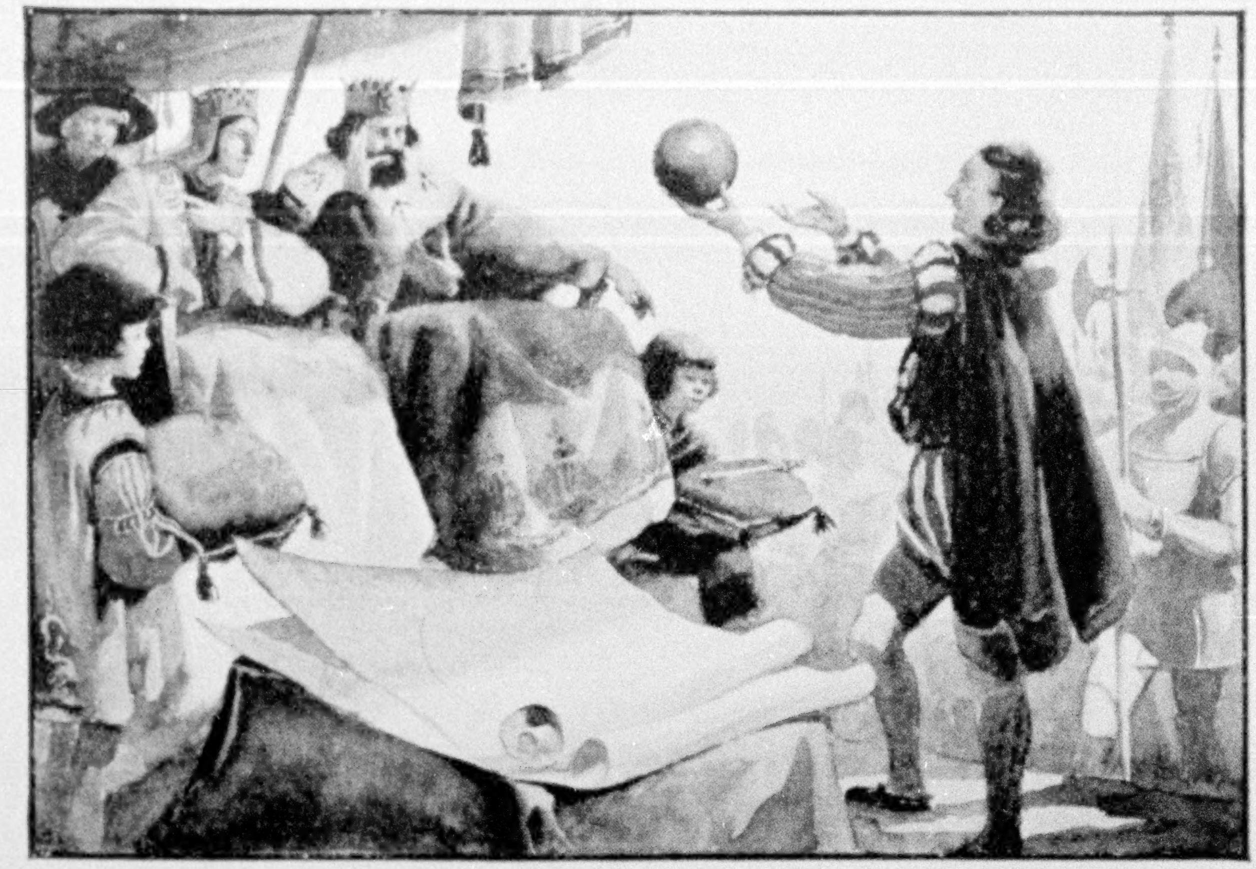
Built in your bathroom walls, not screwed on like ordinary fixtures, they come in a variety of models: Soap holders, paper holders, bath sponges, tumblers and toothbrush holders, towel racks, safety grips, shelves and medicine cabinets. Fairfacts Fixtures are made of china, a material vastly superior to tile. The glazed surface is easily kept clean and being non-porous is not subject to stains or discoloration. Fairfacts Fixtures are of uniform color and of the fine quality only possible in china.

May we send you our booklet, *"The Perfect Bathroom?"*

THE FAIRFACTS COMPANY, INC.,
Manufacturers
234 West 14th St., New York City

Fairfacts Fixtures

BUILT IN YOUR BATHROOM WALLS



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Their prices range from 75c to $625.00.

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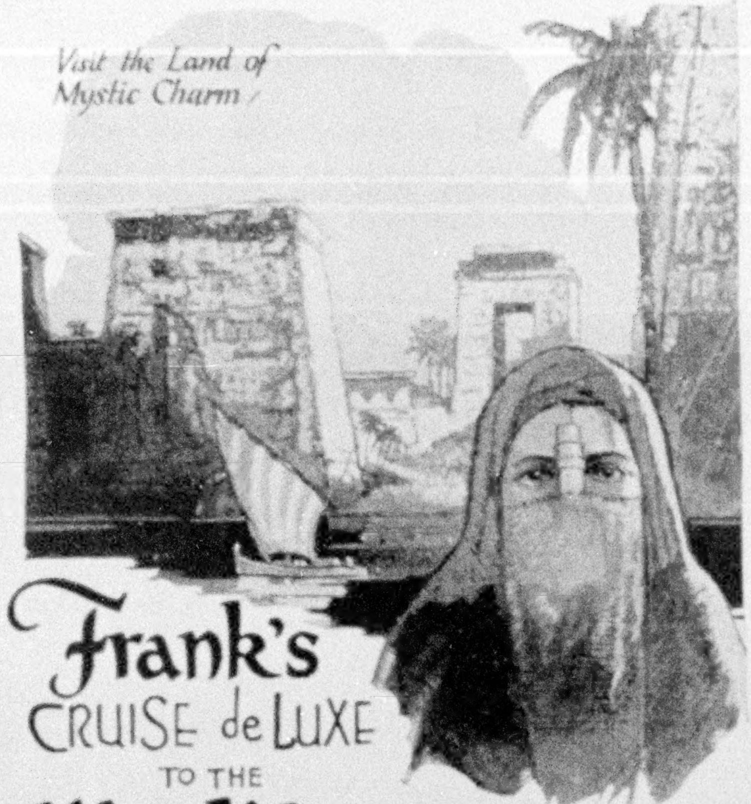
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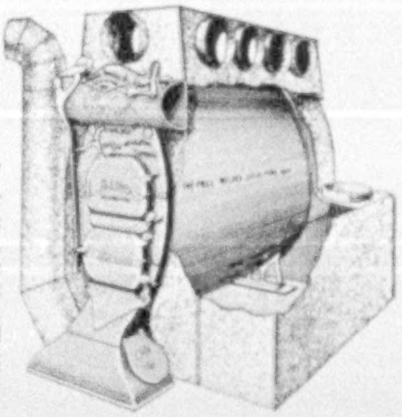

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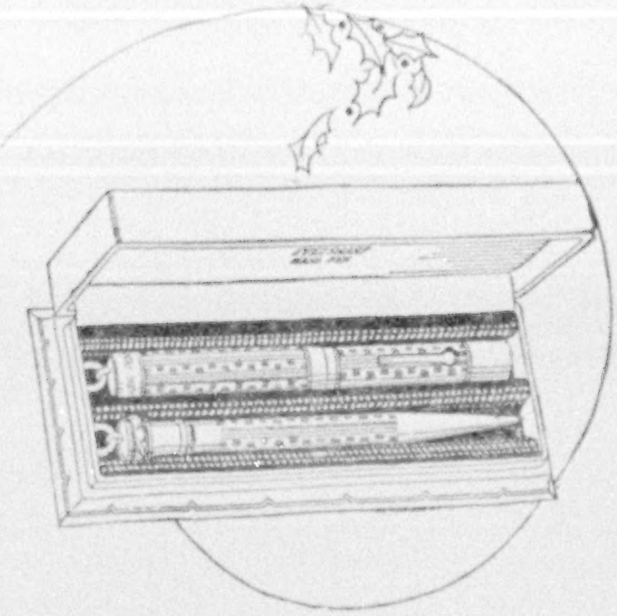

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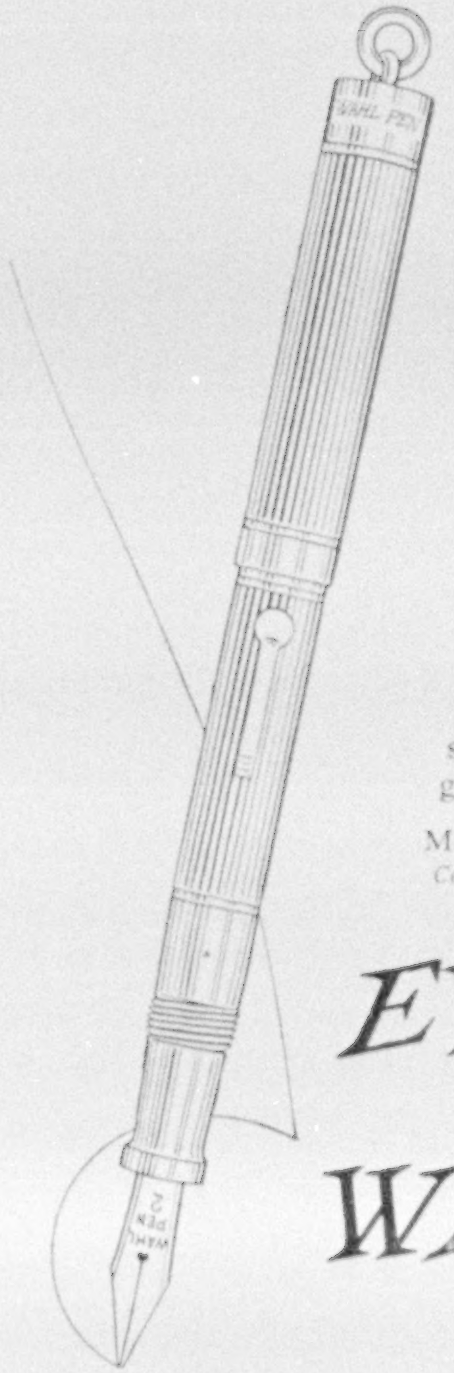

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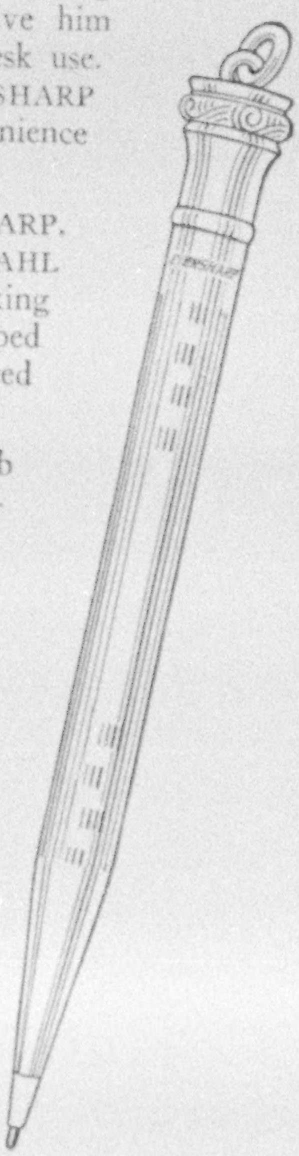

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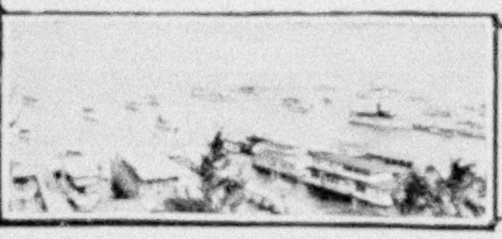

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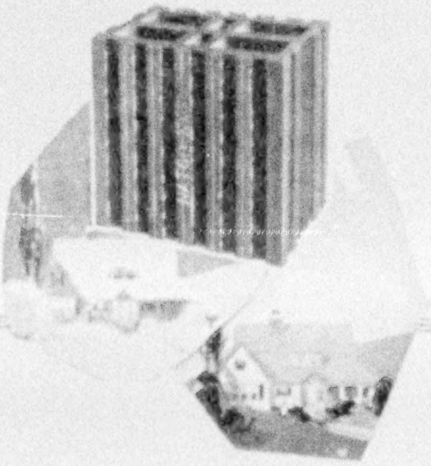

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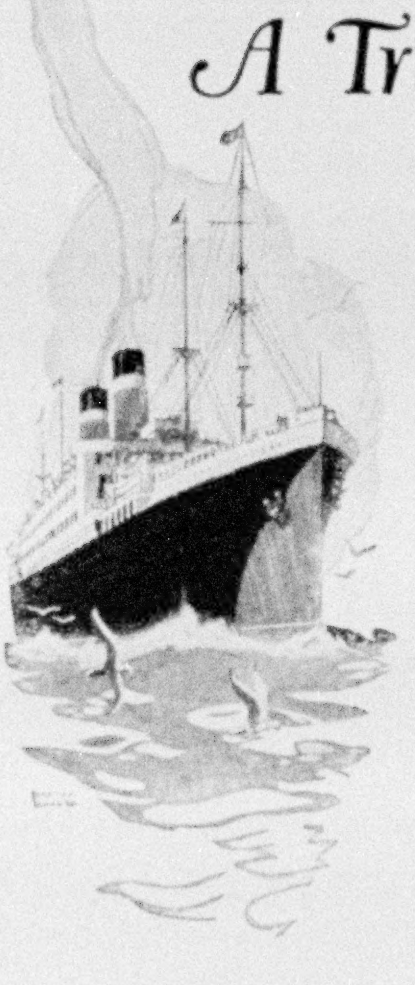

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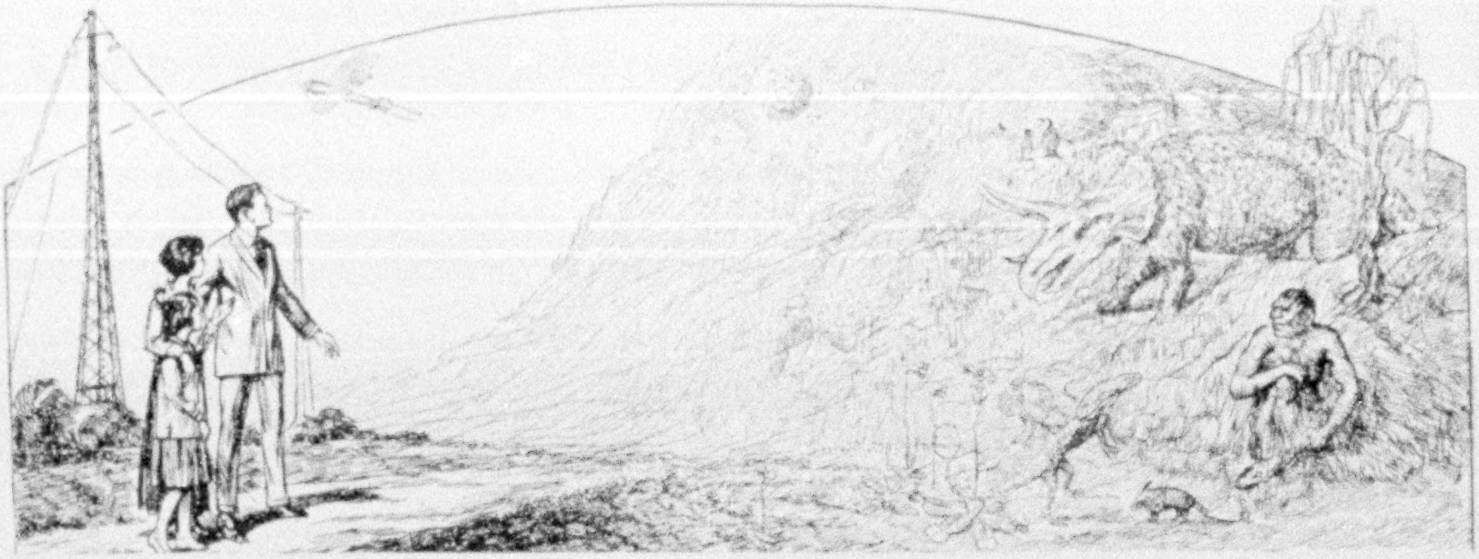

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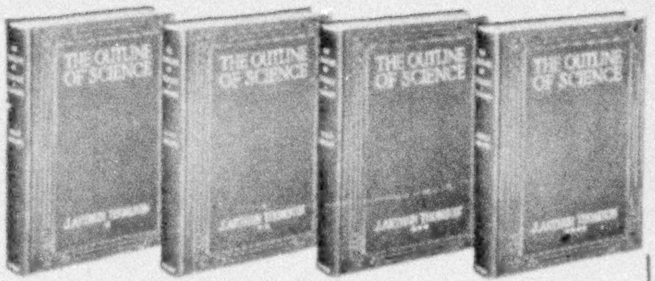

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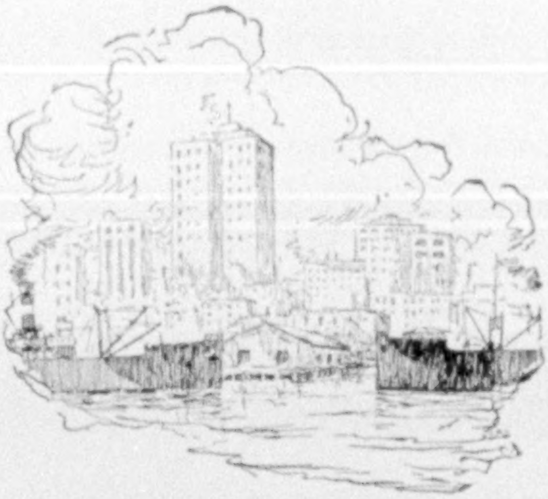

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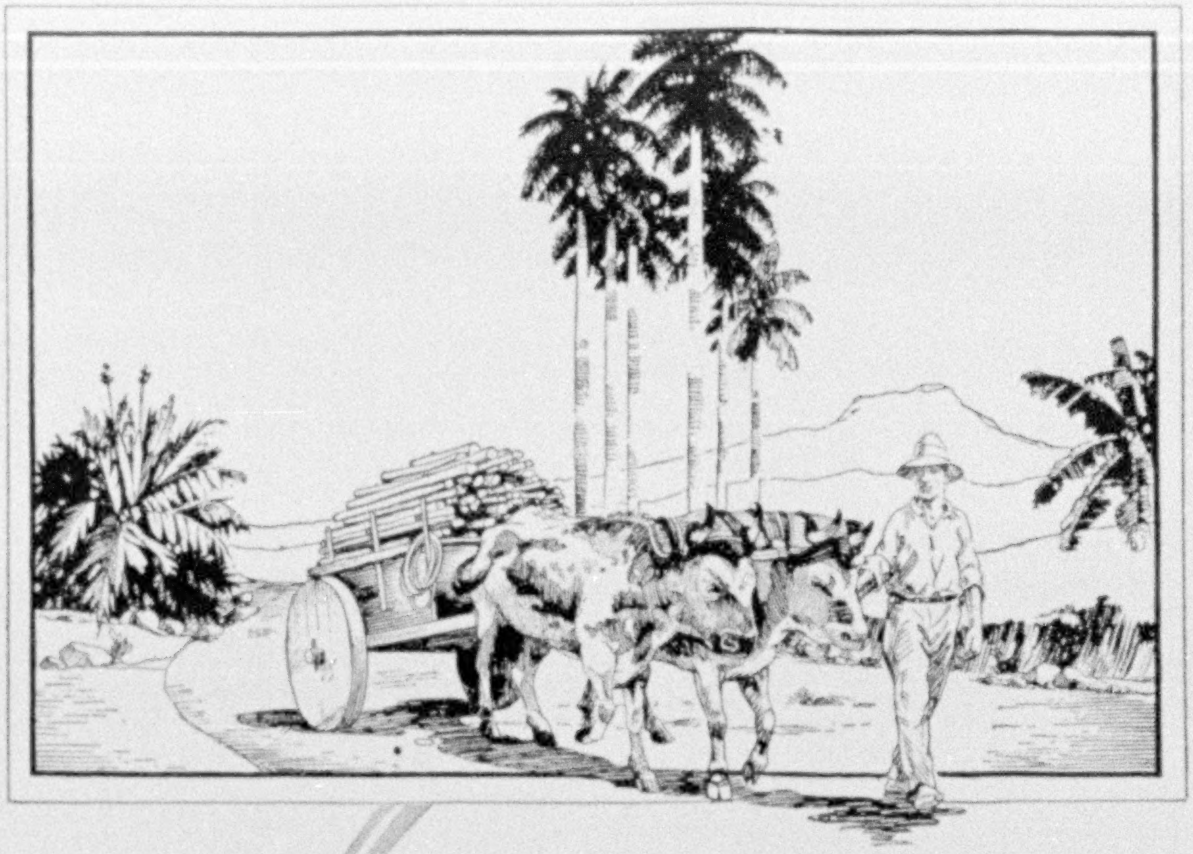

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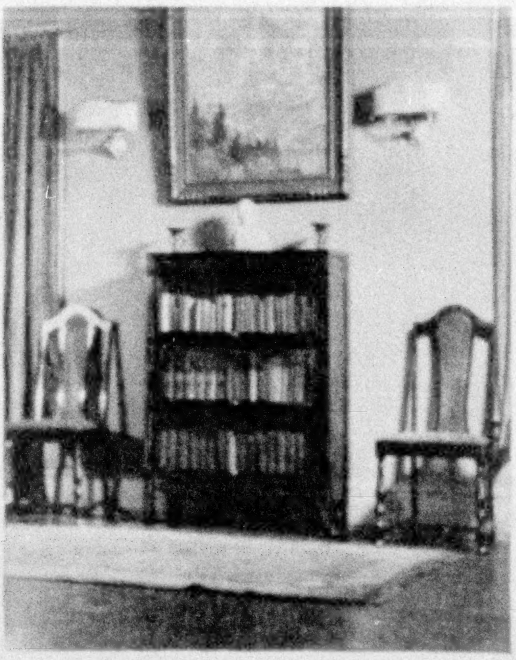

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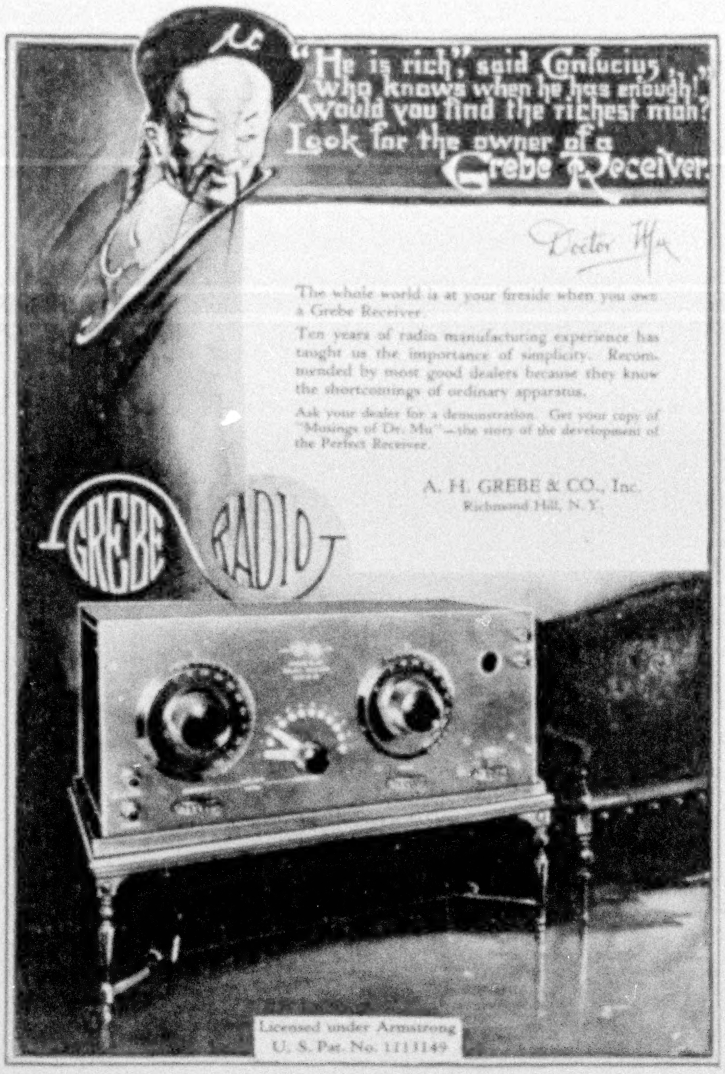
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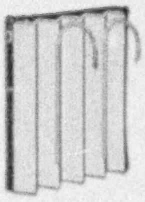

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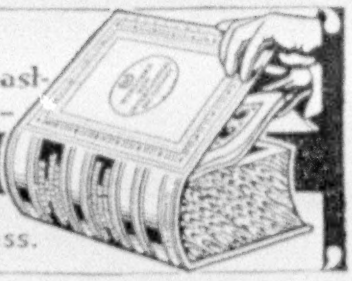

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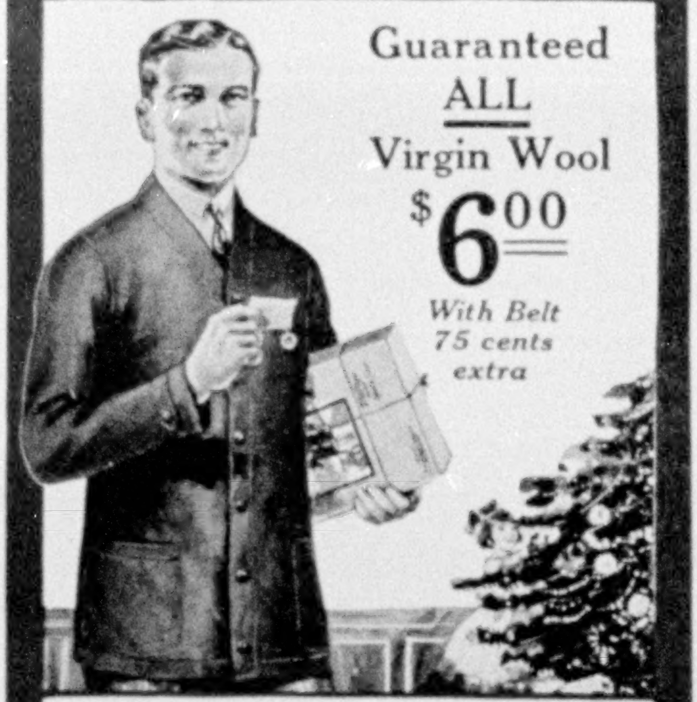

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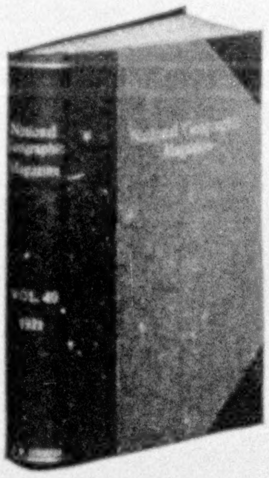

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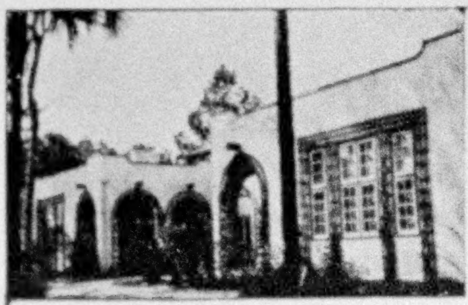

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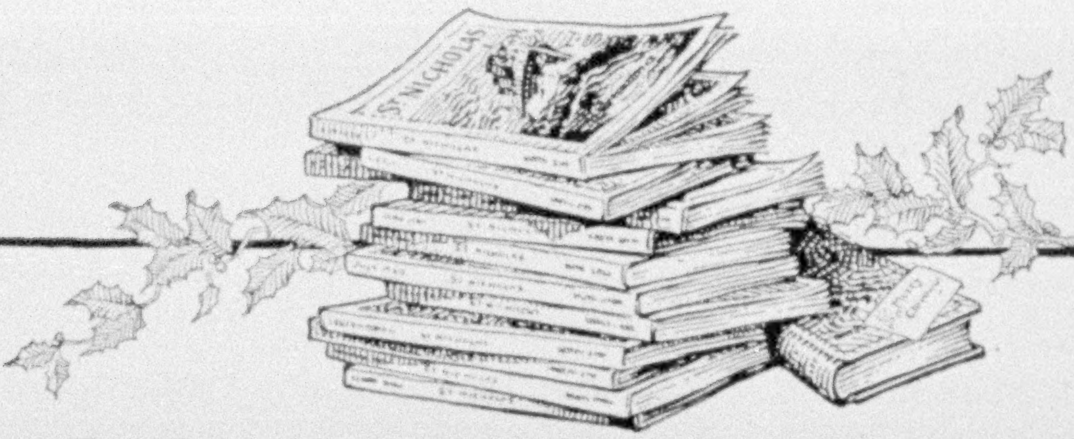

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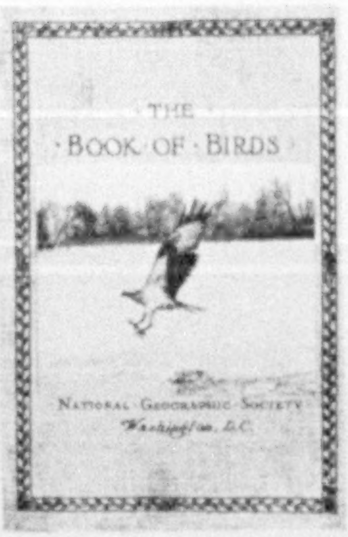
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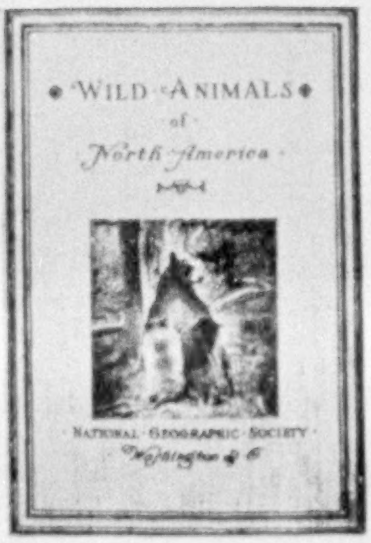
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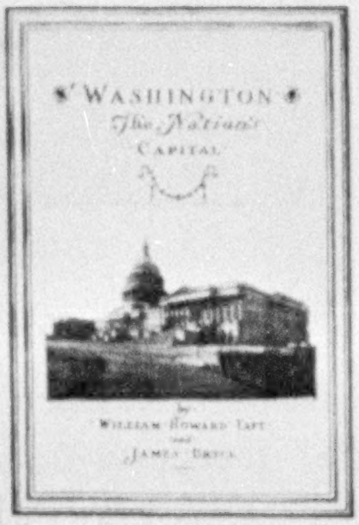
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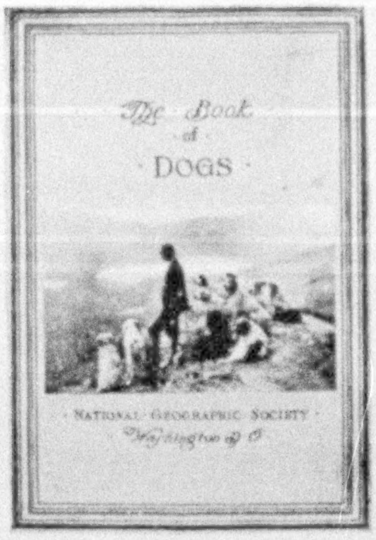

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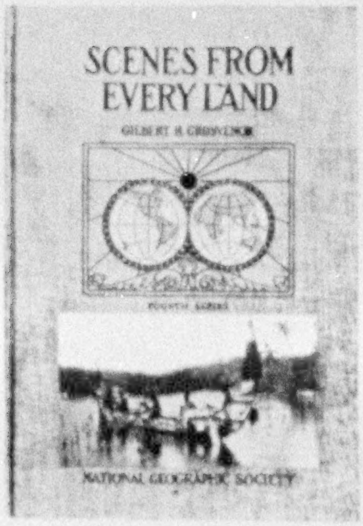

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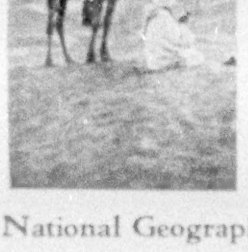

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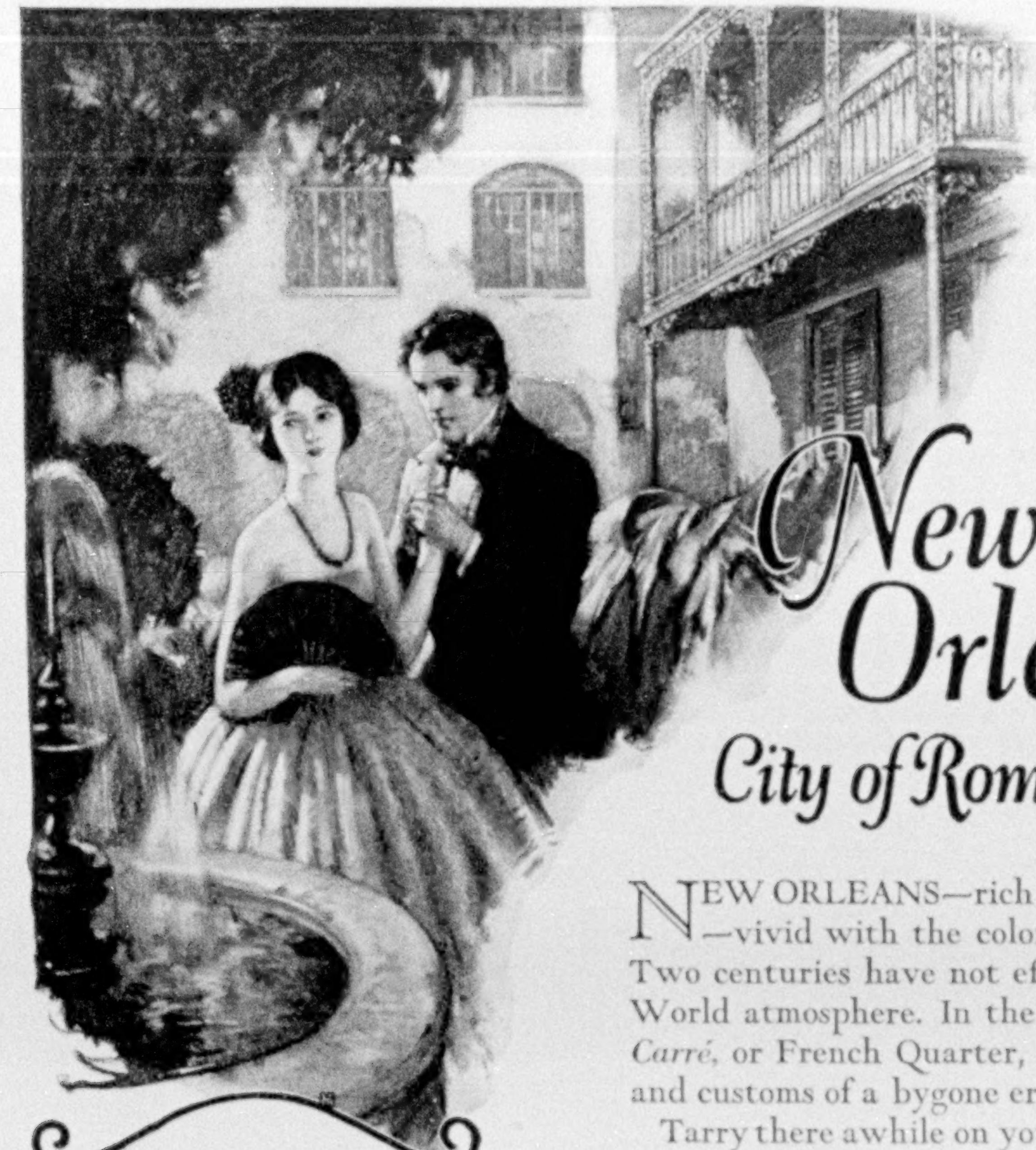

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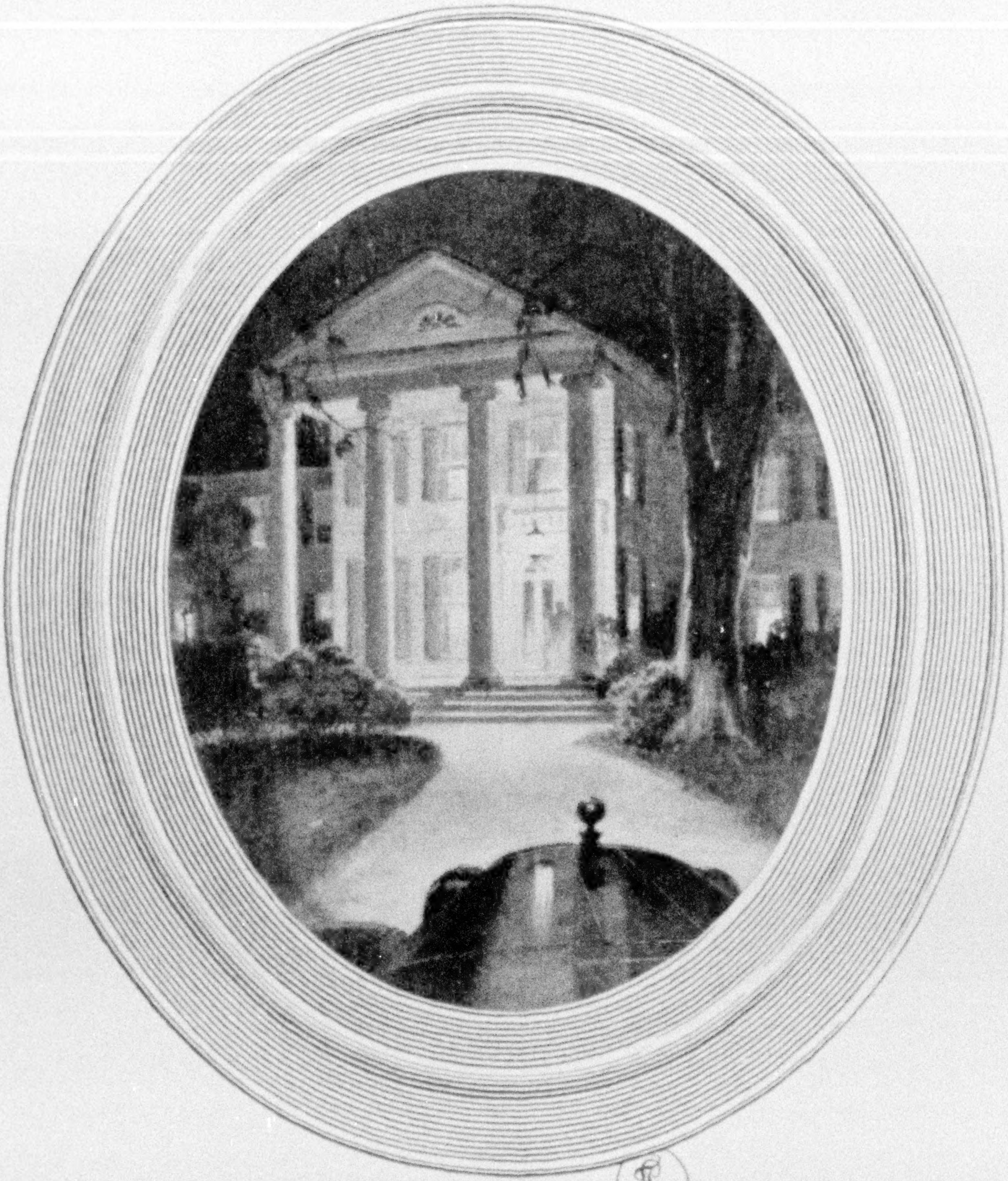

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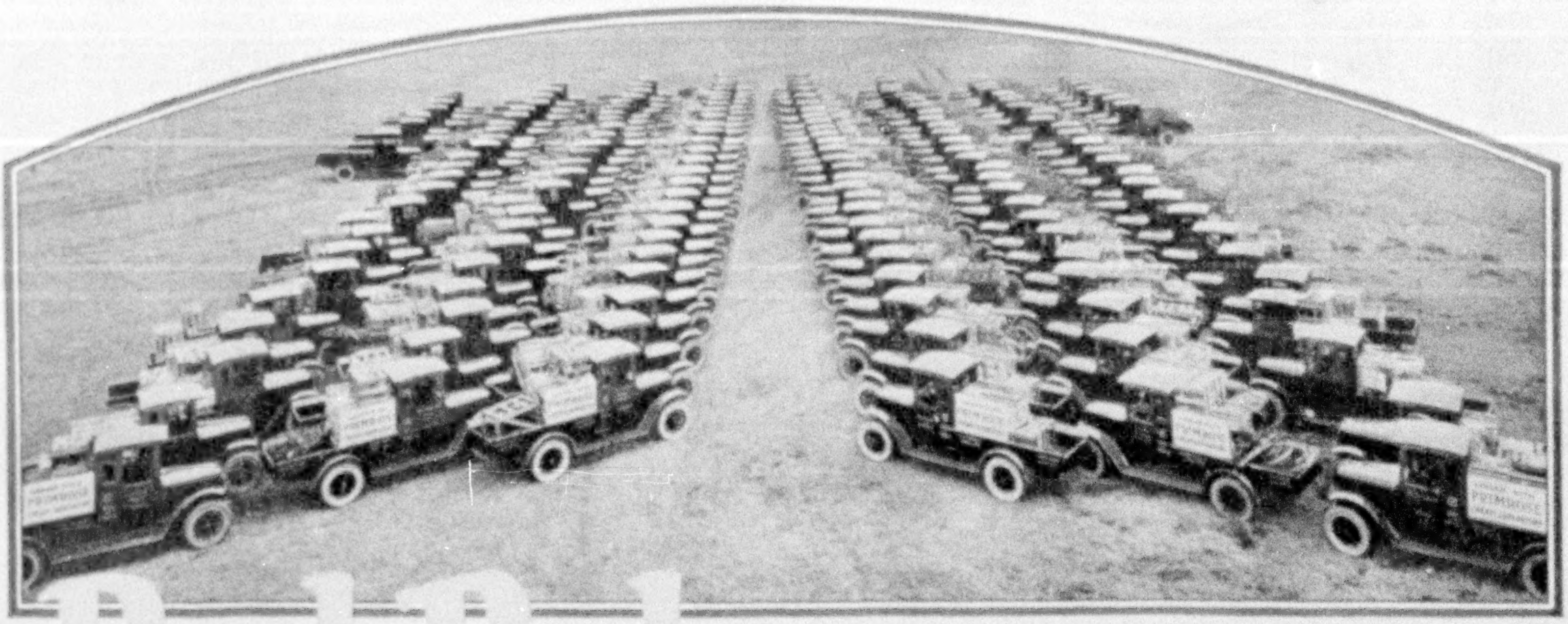

Red Baby Serves the Nation by Serving Agriculture

ONE day, not many months ago, the McCormick-Deering dealers of central Minnesota came to St. Cloud and painted the town red.

It was "Red Baby Day" and the eyes of the motion picture cameras saw the city celebrating. The newspapers issued special editions. Senators and other prominent officials took part in the activities, and business men and farmers in thousands were caught up in a great wave of community enthusiasm.

On that day these McCormick-Deering dealers came into proud possession of the "Red Baby" Service Trucks mobilized in the above photograph. Before night they drove 162 bright-red International Speed Trucks out into the counties around St. Cloud and set them to work—not for resale but for actual use in the betterment of farming. Since that day the "Red Babies" have lived on the roads, distributing equipment, information, repairs, and special aid—carrying everywhere the methods that increase production and wealth.

* * * *

This middle-western incident merely typifies the "Red Baby" enthusiasm that has swept the nation. St. Cloud speaks with a small voice compared with the mighty call for International Speed Trucks that has come from the great McCormick-Deering dealer organization. During this present season a constant procession of "Red Baby" Service Trucks has trailed out of Boston, out of Los Angeles, out of Winnipeg and Jacksonville, out of all International branch house cities into the service of Agriculture.

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